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On a Small Collection of Fish from Iraq.

By SUNDER LAL HOKA and K. S. MISRA.

In October, 1941, a small collection of fifteen specimens, comprising thirteen species, was received from Mr. Dimitry D. Belayew, Specialist in Fisheries, Directorate General of Agriculture, Baghdad, Iraq, for determination. The material was accompanied by photographs of six species and a list containing the local (Arabic) names of the fishes, their classification into families and in the case of three species their probable specific names. The fishes were stated to have been collected from 'the Persian Gulf and from the Hors and the Rivers Shatt-al-Arab, Tigris and the Euphrates'. According to Mr. Belayew, at least fifty kinds of fish are found in these waters.

The material under report has proved of unusual interest, for most of the species represented in it are known from few specimens and, in consequence, their range of variation is not known. We have, therefore, amplified the earlier descriptions by noting the characters in which our specimens differ from the original accounts. One species, *Barbus (Puntius) luteus* (Heckel), has been redescribed, while two others, which seem to be new to science, are described in detail.

We wish to express here our great indebtedness to Mr. D. D. Belayew for affording us an opportunity to examine such interesting material and for his notes on and photographs of the fishes. The drawings were executed by Babu R. Bagchi, Artist, Zoological Survey of India, to whom our thanks are due.

The following thirteen species are represented in the collection:—

Order ISOSPONDYLI.

Family CLUPEIDAE.

1. *Hilsa ilisha* (Hamilton).

Order OPISTHOMI.

Family MASTACEMBELIDAE.

2. *Mastacembelus haleppensis* (Bloch & Schneider).

Order EVENTOGNATHI.

Family CYPRINIDAE.

3. *Barbus (Puntius) luteus* (Heckel).

Order NEMATOGNATHI.

Family SILURIDAE.

4. *Silurus triostegus* (Heckel).

Family BAGRIDAE.

5. *Mystus halepensis colvillii* (Günther).

Order PERCOMORPHI.

Family MUGILIDAE.

6. *Mugil (Liza) hishni* Misra, sp. nov.
7. *Mugil (Liza) oligolepis* (Bleeker).

Family POLYNEMIDAE.

- 8.
- Polydactylus*
- (
- Eleutheronema*
-)
- tetradactylus*
- (Shaw).

Family SPARIDAE.

- 9.
- Acanthopagrus berda*
- (Forskål).

Family DENTICIDAE.

- 10.
- Petrus belayewi*
- Misra, sp. nov.

Family OTOLITHIDAE.

- 11.
- Otolithus ruber*
- (Bloch & Schneider).

Family SILLAGINIDAE.

- 12.
- Sillago sihama*
- (Forskål).

Order CATAPHRACTI.

Family PLATYCEPHALIDAE.

- 13.
- Platycephalus indicus*
- (Linnaeus).

***Hilsa ilisha* (Hamilton).**

1917. *Hilsa ilisha*, Regan, *Ann. Mag. Nat. Hist.* (8), XIX, p. 306.
 1940. *Hilsa ilisha*, Hora, *Journ. Roy. As. Soc. Bengal, Science*, VI, pp. 93-112, plates 5, 6, text-figs. 1-8.
 1941. *Macrura ilisha*, Fowler, *Bull. U.S. Nat. Mus.* (100), XIII, p. 633.

Arabic Name: SBOUR.

Of the two specimens of *Hilsa ilisha* in the collection, the larger, about 388 mm. in total length, is without lateral spots, while the smaller, about 342 mm. in total length, has 6 to 7 spots. The spotted condition is usually characteristic of young and immature specimens, but we have found that even larger specimens caught higher up in the Ganges system near Allahabad are generally marked with a series of lateral spots. It is probable that the spotted condition of the individuals of this species is associated with life in fresh waters.

Hilsa ilisha is an anadromous fish and is known to ascend for considerable distances into all large rivers falling into the Persian Gulf and the seas of India and Burma.

***Mastacembelus haleppensis* (Bloch & Schneider).**

1912. *Mastacembelus haleppensis*, Boulenger, *Journ. Acad. Nat. Sci. Philadelphia* (2), XV, pp. 198, 200.

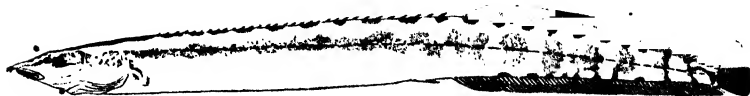
Arabic Name: SAEBOUH ABOU SIYAN.

There is a single specimen of *Mastacembelus*, 496 mm. in length, which we assign to *M. haleppensis*, although it differs in certain respects from the previous descriptions of the species. According to Boulenger's 'Synopsis of the Fishes of the Genus *Mastacembelus*', this species is characterized as follows:—

The snout is scaly only on the sides; the anal spines are close together; the caudal fin is embraced by the dorsal and anal fins but is separated from either or both by a notch; the anal opening is nearer to the base of the caudal fin than to the end of the snout; a preorbital spine is present but there are no preopercular spines (D. XXXII-XXXV 80-90; A. III/80-90); the

mouth extends to below the anterior border of the eye and the head is contained from $6\frac{1}{2}$ to $7\frac{1}{2}$ times in the total length.

In the specimen under report, the dorsal and the anal fins are somewhat shorter (D. XXXI 73; A. III 73); the middle



Text-fig. 1. Lateral view of *Mastacembelus haleppensis* (Bloch & Schneider): $\times 1/5$.

anal spine is the longest and the third could only be made out after careful dissection. It may be remarked that Günther¹ also observed only thirty spines in the dorsal fin of a specimen from the Tigris river and it seems probable that the typical examples from the Euphrates may differ from those found in the Tigris in this respect. The preorbital spine is also very small and could only be made out with difficulty. The pectoral fins are stumpy and appear to be either deformed or diseased.

According to Günther, the colouration of the species is as follows:—

'Above blackish, variegated with dark yellow spots; yellowish below; anal fin yellow near its commencement, the rest, like the dorsal and caudal, being spotted with black.'

In the specimen under report, the general colour is grayish, somewhat darker above than below; along the dorsal surface of the head and the anterior part of the trunk for a distance equal to the length of the snout there is a broad dark, irregular streak beyond which the dorsal surface is provided with about twenty-one rounded or elliptical black spots which are closer together towards the posterior end. Along the lateral line, there is a broad longitudinal streak which becomes broken up into irregular spots after the middle of the body, and joining with the spots above forms vertical bands in the posterior part of the tail. The lower part of the body in the tail region is variegated with smaller spots, some of which form a series at the base of the anal fin. The dorsal, caudal and anal fins are irregularly marked with spots and short bands.

Measurements in millimetres.

Total length	..	..	..	..	495.0
Standard length	..	..	..	..	470.0
Length of head	..	..	..	..	76.0
Depth of body	..	..	..	..	42.5
Diameter of eye	..	..	..	..	7.0
Length of snout to base of proboscis	..	..	..	..	19.0
Interorbital distance	..	..	..	..	5.5

¹ Günther, A., *Ann. Mag. Nat. Hist.* (4), XIV, p. 36 (1874).

Barbus (Puntius) luteus (Heckel).

1841. *Systomus luteus*, Heckel, in Russegger's *Reisen in Europa, Asien und Africa*, I, p. 1016, pl. 6, fig. 1.
 1868. *Barbus luteus*, Günther, *Cat. Fish. Brit. Mus.*, VII, p. 141.

Arabic Name: BINNI HIMRI.

There is a single specimen of a Cyprinoid fish in the collection which we assign to *Barbus luteus*. According to Günther,¹ it occurs 'in the Orontes, throughout Mesopotamia and Persia'. In recording this species from the Tigris, Günther (*loc. cit.*) placed it in his genus *Barynotus* and observed:—

'Since I have had the opportunity of examining specimens collected by the Marquis Doria at Shiraz, I have convinced myself that it should be removed from the genus *Barbus* (or *Systomus*), to which Heckel had referred it, and placed in *Barynotus*.'

On referring to later literature, it appears that Weber and de Beaufort² have confined the genus *Barynotus* to *B. microlepis* (Bleeker) known from Sumatra and Borneo. In regard to Günther's logotype³, *B. lagensis* Günther, they observe that

'According to our opinion *Barynotus lagensis* Gthr. does not belong to this genus, but belongs to *Barbus s. lat.*, where this species has been placed by Boulenger (*Cat. Freshwater fishes Africa II*. 1911, p. 100). Thus *Barynotus* only contains the one species from the Indo-Australian Archipelago.'

It seems that Günther (1868, p. 62) was also aware of certain fundamental differences between the two species he had originally assigned to the genus *Barynotus*, for under the description of *B. microlepis* he observed:—

'Although this species differs in a number of well-marked characters from the other, I hesitate to separate them generically, as we have seen a continuous chain of species distinguished by the very same characters in the genus *Barbus*.'

Without going further into the validity of the genus *Barynotus*, as restricted by Weber and de Beaufort, we feel certain that the species from the Tigris under report is generically not very different from the large number of Indian species grouped under *Puntius* Hamilton. As we have not found any suitable description of *B. luteus*, we describe fully the specimen from the Tigris river examined by us.

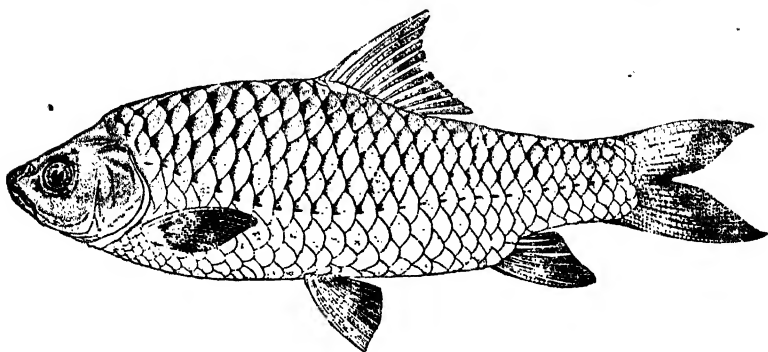
In *Barbus luteus* the dorsal surface is more arched than the ventral and the dorsal profile rises abruptly from the tip of the snout to the base of the dorsal fin. The ventral profile is more

¹ Günther, A., *Ann. Mag. Nat. Hist.* (4), XIV, p. 37 (1874).

² Weber, M. and de Beaufort, L.F., *Fish. Indo-Austral. Archipel.* II, pp. 119, 120 (1916).

³ Jordan, D. S., *The Genera of Fishes*, p. 351 (Stanford University, California, 1919).

regularly arched. The head is relatively small and pointed anteriorly; its length is contained 5.5 times in the total length



Text-fig. 2. Lateral view of *Barbus (puntiatus) luteus* (Heckel): \times ca 2/5.

and 4.3 times in the length without the caudal. The eyes are situated almost in the anterior half of the head; the diameter of the eye is contained 4 times in the length of the head, 1.24 times in the length of the snout and 1.84 times in the interorbital distance. The mouth is subinferior and bordered by moderately developed lips; the labial groove is widely interrupted in the middle. The rostral fold partly covers the upper lip and is provided with short lateral grooves. There is a pair of short maxillary barbels arising from the grooves round the corners of the mouth.

The depth of the body is considerably greater than the length of the head and is contained 3.8 times in the total length and 3.05 times in the length without the caudal. The tail portion behind the anal fin becomes narrow abruptly; the least height of the caudal peduncle is contained 1.22 times in its length. The body is covered with relatively large and well-developed scales; there are twenty-eight scales along the lateral line, $2\frac{1}{2}$ rows between the lateral line and the base of the pelvic fin and ten in front of the dorsal fin. The number of scales round the caudal peduncle is fourteen. There is an adnate scaly appendage in the axil of the pelvic fin.

The dorsal fin commences opposite the pelvics and its commencement is almost midway between the tip of the snout and the base of the caudal fin. The dorsal spine is strong and bony, except near the tip where it is flexible; it is almost as long as the head behind the nostrils. The longest ray of the pectoral fin is equal to that of the dorsal spine; the pectoral fin is separated from the pelvic by a considerable distance. The pelvic fins are considerably shorter and are approximated ventrally. The longest ray of the anal fin is shorter than that of the

dorsal. The caudal fin is deeply emarginate with both the lobes pointed, the lower lobe being slightly longer than the upper.

The colour in the preserved specimen has faded considerably. The dorsal surface and sides almost up to the lateral line are grayish while the lower surface is much lighter. In the upper half, there are dark markings at the bases of the scales. The fins, specially in their distal parts, are light gray.

Measurements in millimetres.

Total length	..	..	..	..	273.5
Standard length	..	..	..	..	220.0
Length of head	..	..	..	..	51.0
Height of head at occiput	..	..	..	..	39.0
Width of head	..	..	..	..	37.0
Diameter of eye	..	..	..	..	12.5
Length of snout	..	..	..	..	15.5
Interorbital width	..	..	..	..	23.0
Depth of body	..	..	..	..	72.0
Width of body	..	..	..	..	39.5
Length of caudal peduncle	..	..	..	..	36.0
Least height of caudal peduncle	..	..	..	..	29.3
Height of dorsal fin	..	..	..	..	43.0
Length of dorsal spine	..	..	..	..	42.0
Longest ray of pectoral fin	..	..	..	..	42.0
Longest ray of pelvic fin	..	..	..	..	35.0
Longest ray of anal fin	..	..	..	..	39.0
Length of maxillary barbel	..	..	..	..	4.5

Silurus triostegus (Heckel).

1841. *Silurus triostegus*, Heckel, in Russegger's *Reisen in Europa, Asien und Africa* etc., I, p. 1090, pl. 13, fig. 1.

1864. *Silurus triostegus*, Günther, *Cat. Fish. Brit. Mus.*, V, p. 429.

Arabic Name: DJIRRI.

D. 4; A. 80; P. 1/14; V. 13; C. 18.

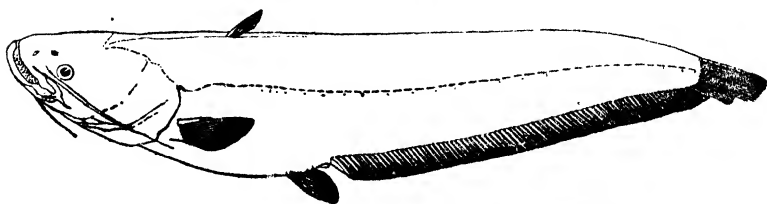
There is only one specimen, 294 mm. in total length, which we assign to *Silurus triostegus* (Heckel). In comparing our specimen with Günther's brief description of the species, we find that its head is relatively longer, being contained 4.59 times in the total length *versus* 'five times and one-fourth' and the pectoral spine is smooth along both the inner and outer edges *versus* 'Pectoral spine serrated'. The two agree as regards the prominent nature of the lower jaw, the respective lengths of the barbels, and the union of the anal and caudal fins. It appears from Berg's recent work¹ that in recognizing species of this genus, he attaches little importance to the nature of the pectoral spine, for he has included Regan's² *S. bedfordi*, with the outer edge

¹ Berg, L. S., *Poiss. des. eaux douces de l' U.S.S.R.*, 3rd. ed., p. 587 (Leningrad), 1933.

² Regan, C. T., *Proc. Zool. Soc. London*, p. 61 (1908).

of the pectoral spine roughened or finely serrated and inner edge entire, under the synonymy of his *Parasilurus asotus*, in which both edges of the pectoral spines are serrated. The length of the head also is a variable character, especially when young and half-grown specimens are compared with fully grown individuals. It would thus appear that, in spite of the differences noted above, our specimen may belong to *S. triostegus*, a species described by Heckel from the Tigris river which is also the locality of the specimen studied by us.

S. triostegus is thus distinguished from *S. asotus*, of which *S. chantrei* (Sauvage)¹ from Tiflis with smooth pectoral spines and long barbels is probably a synonym, by its short barbels which do not extend beyond the head, but as shown by one of us² in the case of the Indian species of *Silurus* and allied genera, much reliance cannot be placed on the extent of the maxillary and mandibular barbels in different individuals for specific differentiation. It was also pointed out that the presence or



Text-fig. 3. Slightly dorso-lateral view of *Silurus triostegus* (Heckel):
× ca 3/8.

absence of an additional pair of mandibular barbels is not sufficient for separating species generally, and for this reason *Parasilurus* was not recognized as a distinct genus. Recent findings of Bhimachar and Rau³ have lent support to this view. There would thus appear to be *a priori* grounds for regarding *S. triostegus* also as a mere variant of the widely distributed palaearctic species *S. asotus*, but we have not sufficient material at our disposal to decide this taxonomic point. Günther⁴ in describing the fishes of the Lake Urmir made the following remark regarding *S. triostegus* under the account of *S. glanis*:—

'I have some doubts as to whether *S. triostegus* of Heckel, from the Tigris, can be maintained as a distinct species. The dorsal fin of *Silurus* is a rudimentary organ, and therefore may be expected to vary in the number and development of its rays.

¹ Sauvage, M. H. E., *Nouv. Archiv. Mus. Hist. Nat. Paris* (2), VII, p. 19, pl. I, fig. 1. (1884).

² Hora, S. L., *Rec. Ind. Mus.*, XXXVIII, pp. 351-361 (1936).

³ Bhimachar, B. S. and Rau, A. Subba, *Journ. Mysore Univ.* (B), I, pp. 147-150 (1941).

⁴ Günther, G. A., *Journ. Linn. Soc. London, Zoology*, XXVII, p. 383 (1839).

Even in European specimens the fourth dorsal ray is not constantly branched, but may be simple and reduced in size and I have found it so also in a specimen from the Tigris. However the barbels of Mesopotamian specimens seem to be shorter than in European.'

To facilitate reference in future we give below the measurements of the specimen examined by us. It may also be noted that the number of gill-rakers on the outer arch in the example from the Tigris is 14+3, while in some of the specimens of *S. asotus* examined by us the number on the lower part does not exceed 10.

Measurements in millimetres.

Total length	..	..	..	..	294.0
Standard length	..	..	..	..	266.0
Length of head	..	..	..	..	64.0
Width of head	..	..	..	..	46.0
Width of body	..	..	..	..	41.5
Depth of body	..	..	..	..	53.0
Diameter of eye	..	..	..	..	7.0
Length of snout	..	..	..	..	17.5
Interorbital width	..	..	..	..	25.0
Longest ray of pectoral	..	..	..	..	30.0
Length of pectoral spine	..	..	..	..	20.0
Length of maxillary barbel	..	..	..	..	58.5
Length of mandibular barbel	..	..	..	..	22.0

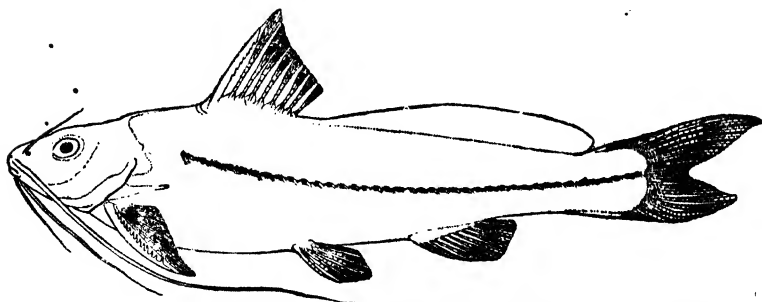
***Mystus halepensis colvillii* (Günther).**

1794. *Silurus pelusius*, Russell, *Nat. Hist. Aleppo*, II, p. 210, pl. 7, fig. 1.
 1841. *Bagrus halepensis*, Heckel, in Russegger's *Reisen in Europa, Asien und Africa*, I, p. 1091, pl. 8, fig. 2.
 1865. *Macrones aleppensis*, Günther, *Cat. Fish. Brit. Mus.*, V, pp. 75, 431.
 1874. *Macrones Colvillii*, Günther, *Ann. Mag. Nat. Hist.* (4), XIV, p. 36, pl. 8.

Arabic Name: ABOUZ-ZOUMEIR.

In 1874, Günther described and figured *Macrones colvillii* from Bagdad on the River Tigris and stated that its vernacular name is 'Abu Zumare'. We have examined a specimen from the same locality received under more or less the same vernacular name, but find that it differs from Günther's descriptions in two respects. It has a somewhat deeper body, the depth of the body being contained 4.81 times in the standard length *versus* 'six and a half times in the total length (without caudal)', and the adipose fin is about three times as long as the dorsal, and commences almost immediately behind the rayed dorsal fin *versus* 'The adipose fin is about twice as long as the dorsal, and commences at a distance from it which is about equal to the length of the dorsal'. By italicizing the portion of the description as indicated above, Günther seems to have attached great significance to the point of commencement of the adipose fin in distinguishing

his *M. colvillii* from allied species. In the points noted above, our specimen agrees with *Mystus halepensis* (Heckel), usually known under the name *Macrones aleppensis* (Heckel), but differs from Günther's description of the species in the nature and extent of the dorsal and pectoral spines, which are stated to be as long



Text-fig. 4. Lateral view of *Mystus halepensis colvillii* (Günther): \times ca 3/4.

as the head without snout, 'dorsal spine of moderate strength scarcely serrated behind'. It would thus appear that the specimen examined by us is intermediate between the two species and that the points of differences noted above may be within the range of normal variations when large series of specimens are examined. For the present we regard *colvillii* as a variety of *halepensis*. It may be noted that Günther was aware of the close relationship of the two species, for in describing *M. colvillii* he remarked, 'much more slender than *M. aleppensis*, to which it is closely allied'. The slender form and the relatively shorter adipose fin of *M. colvillii* may be due to the fact that specimen was probably ill-nourished for some reason.¹ We give below the measurements of the specimen examined by us.

Measurements in millimetres.

Total length	..	..	..	150.0
Standard length	..	..	..	125.0
Length of head	..	..	..	28.0
Width of head	..	..	..	21.2
Depth of body	..	..	..	26.0
Diameter of eye	..	..	..	6.0
Length of snout	..	..	..	11.5
Interorbital width	..	..	..	7.5
Length of dorsal spine	..	..	..	20.0
Length of pectoral spine	..	..	..	20.3
Length of base of dorsal fin	..	..	..	18.0
Length of base of adipose fin	..	..	..	58.0
Length of nasal barbel	..	..	..	14.0
Distance between commencement of V. & A.	..	..	..	74.0
Length of maxillary barbel.	..	..	..	24.0
Longest ray of pelvic fin	..	..	..	14.5

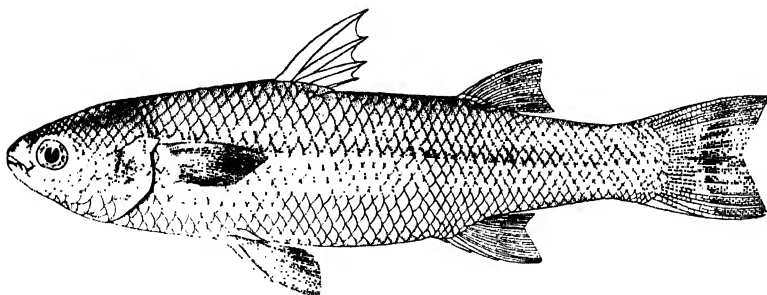
¹ Hora, S. L. and Misra, K. S., *Journ. Bombay Nat. Hist. Soc.*, XL, p. 35 (1938).

Mugil (*Liza*) hishni Misra, sp. nov.

Arabic Name: HISENI or HASHOUN.

D. 1. IV; D. 2. $1\frac{1}{8}$; A. III 8-9; P. $1\frac{1}{16}$; V. $1\frac{1}{5}$; C. 14; L. 1. 46-49; L. tr. 15-16.

In this species of Mullet, the ventral profile is somewhat more arched than the dorsal. The length of the head is contained from 4.3 to 4.4 times in the standard length and from 5.2 to 5.4 times in the total length. The body is considerably deeper than the length of the head; its depth is contained from 3.7 to 4.1 times in the standard length and from 4.6 to 4.8 times in the total length. The diameter of the eye is contained from 3.1 to

Text-fig. 5. Lateral view of *Mugil (Liza) hishni* Misra, sp. nov.: $\times 2\frac{1}{5}$.

4 times in the length of the head, from 0.8 to 1.0 times in the length of the snout and from 1.3 to 1.5 times in the interorbital distance. The adipose eyelids are absent. The interorbital space is nearly flat. The anterior nostril is situated midway between the tip of the snout and the anterior margin of the eye. The lower margin of the preorbital bone is curved downwards and is denticulated. The maxillaries are exposed. The symphysial knob is single. The upper lip is fairly thick and is provided with small cilia. The gill-rakers are thirty-four + fifty; they are finely lanceolate, the longest being 2.3 in gill-filaments which are contained about 5.2 times in the length of the head.

The first dorsal fin is inserted about the 10th to 11th scale of the lateral line and is considerably nearer to the tip of the snout than to the base of the caudal fin; its first spine is very strong and is somewhat longer than the head. The length of base of the first dorsal is contained 2.8 to 2.9 times in the length of the head. There are about twenty-three or twenty-four predorsal scales. The second dorsal commences above the twenty-seventh to twenty-eighth scales of the lateral line; the second soft ray is contained from 1.6 to 2.0 times and

the length of its base from 2.7 to 2.9 times in the length of the head. The anal fin commences below the twenty-fourth to twenty-fifth scale. The pectoral fin extends as far as the eleventh or twelfth scale and its length is contained 1.3 times in the length of the head. There is no axillary scale. The pelvic fin is as long as the pectoral. The caudal fin is slightly emarginate with both the lobes pointed and equal. The least height of the caudal peduncle is contained from 1.7 to 2.1 times in its length.

The dorsal surface of the head and body and the sides above the lateral line are grayish and the lower surface is silvery. The second dorsal and the caudal fins are dusky. The margins of the scales are covered with small black dots.

Locality: Rivers and Hors, Iraq.

Type-specimen: F13626/1, Zoological Survey of India.

Remarks: *Mugil hishni* is closely related to *M. auratus* Risso¹ but the two can be distinguished by the following table of characters:—

Mugil hishni

1. Dorsal spine very strong; 1.1 to 1.2 in head.
2. Predorsal scales 24 to 25.
3. Spinous dorsal much nearer tip of snout than base of caudal, both in adult and young specimens.

Mugil auratus

1. Dorsal spine moderately strong; 1.6 to 2.0 in head.
2. Predorsal scales 34 to 40.
3. Spinous dorsal slightly nearer tip of snout than base of caudal; midway in young specimens.

Measurements in millimetres and scale counts.

Total length	..	..	260.0	127.0
Standard length	..	..	219.5	104.0
Length of head	..	..	50.0	23.5
Width of head	..	..	31.0	15.5
Diameter of eye	..	..	12.5	6.0
Length of snout	..	..	12.5	6.0
Interorbital distance	..	..	19.0	10.0
Depth of body	..	..	53.5	27.5
Length of first spine of 1st dorsal	..	..	40.0	21.5
Length of second spine of 1st dorsal	..	..	30.0	17.0
Length of third spine of 1st dorsal	..	..	26.0	12.5
Length of fourth spine of 1st dorsal	..	..	14.0	7.0
Length of second ray of 2nd dorsal	..	..	24.0	15.0
Length of base of first dorsal	..	..	17.5	8.0
Length of base of second dorsal	..	..	18.5	8.0
Length of pectoral fin	..	..	38.0	18.0
Length of pelvic fin	..	..	38.0	18.5
Length of second ray of anal fin	..	..	30.0	18.0
Distance between snout and commencement of 1st dorsal	..	..	98.0	46.0
Length of caudal peduncle	..	..	55.0	23.0
Least height of caudal peduncle	..	..	26.0	13.0
Predorsal scales	..	..	23	24
Scales along lateral line	..	..	46	49

¹ Fowler, H. W., *Bull. Amer. Mus. Nat. Hist.*, LXX, p. 589 (1936).

Mugil (Liza) oligolepis (Bleeker).

1935. *Mugil oligolepis*, Smith, *Ann. South Afr. Mus.*, XXX, p. 635, pl. 21, fig. B. and pl. 22, figs. C. & D.

Arabic Name: BIAHA.

In referring a specimen, 239 mm. in total length to *Mugil oligolepis* we have relied on Smith's (*loc. cit.*, pp. 598, 599) key to the Mugilidae of South Africa. Though Barnard¹ regarded *M. oligolepis* as more or less identical with *M. waigiensis*, Smith has shown that the two species with large scales, about twenty-six to twenty-eight along the lateral line, can be separated by the following characters:—

- (a) 'Anal rays eight. Caudal almost truncate. Pectoral partly or wholly black .. *waigiensis*.
- (b) Anal rays nine. Caudal emarginate. Pectorals light *oligolepis*.'

In the specimen examined by us and in the photograph of a much larger specimen sent by Mr. Dimitry D. Belayew, we find that the caudal fin is distinctly emarginate, the number of branched anal rays is nine and the pectoral fins are of pale colour. The tip of the second dorsal and that of the middle, shorter rays of the caudal are tinged with black. There is also a weak axillary spot and the body is marked with several faint longitudinal rows along the scales. As already noted by Smith, the spines of the first dorsal fin are stronger than is usually the case with most of the species of *Mugil*.

According to Smith, *M. oligolepis* has hitherto been described from juvenile specimens but he had a specimen 206 mm. in length.

The species has hitherto been recorded from Seychelles (Regan); South Africa (Delagoa Bay, Fowler; Isipingo Lagoon, Smith); seas and estuaries of India (Day); Saigon, Philippines, Malacca, North Celebes, and South and West Borneo. It is recorded here from the Persian Gulf for the first time.

***Petrus belayewi* Misra, sp. nov.**

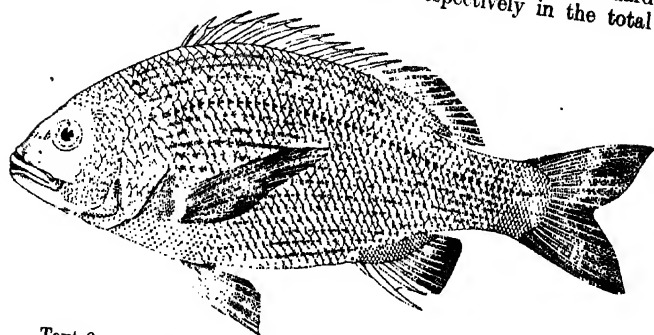
Arabic Name: TCHENDAL.

D. XII/11; A. III 8½; P. 1/14; V. 1/5; C. 17; L. 1. 46+6; L. tr. 5½/13½.

In the new species of *Petrus*, both the dorsal and the ventral profiles are gracefully arched; the dorsal being somewhat more convex than the ventral. The length of the head is contained

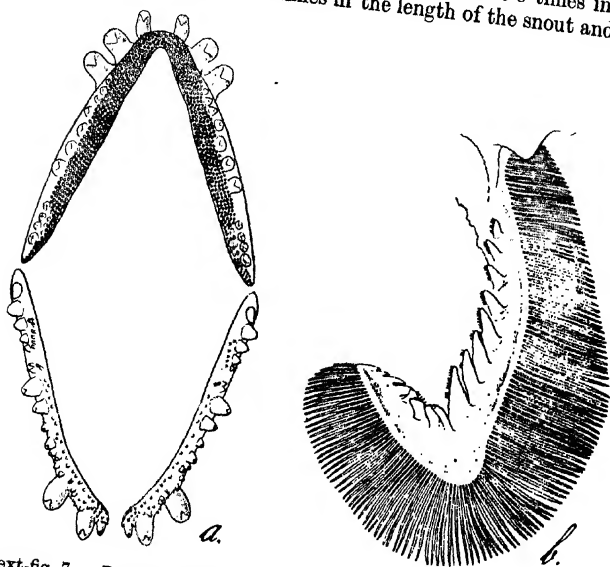
¹ Barnard, K. H., *Ann. South Afr. Mus.*, XXI, p. 1023 (1927).

3.4 times and the depth of the body 2.4 times in the standard length and 4.3 times and 3.0 times respectively in the total



Text-fig. 6. Lateral view of *Petrus belayewi* Misra, sp. nov.: $\times 2/5$.

length. The diameter of the eye is contained 3.8 times in the length of the head, 1.16 times in the length of the snout and 1.0



Text-fig. 7. *Petrus belayewi* Misra, sp. nov. a. Dentition: $\times 2\frac{1}{2}$; b. Anterior gill-arch: $\times 2$.

times in the interorbital distance. The mouth is large and the maxilla extends as far as the middle of the eye. The jaws are

subequal. There are six canines in the upper jaw, the two inner being somewhat smaller, and four in the lower jaw. There are narrow bands of fine teeth in both the jaws, some of them near the posterior end of each jaw are molariform. The outer, lateral teeth are conical. The gill-rakers are short and laminate; there are nine of these on the lower limb of the anterior arch.

The dorsal fin commences above the opercular margin. The spines are rather short, the longest being less than half the length of head. The soft rays are somewhat longer. The length of base of the soft portion of the dorsal is almost half of that of the spinous portion. The anal commences below the second soft dorsal ray; the second spine is the longest and quite strong. The pectoral is much longer than the head and extends as far as the anal opening. The pelvic is considerably shorter than the head and does not reach the vent. The caudal fin is forked; both the lobes are pointed and the upper is slightly longer.

There are six rows of scales on the cheek. The interorbital space is also partly covered with scales.

The colour is olivaceous above and lighter below. The scales are provided with dark margins and the body is traversed with narrow, dark stripes. The inter-spinous membranes of the dorsal and anal fins are black. The anal fin and the lobes of the caudal fin are tinged with black. The other fins are of a much lighter colour.

Locality: Rivers and Hors, Iraq.

Type-specimen: F13628/1, Zoological Survey of India.

Remarks: *Petrus belayewi* differs from *P. rupestris* (Val.)¹ in the following particulars:—

Petrus belayewi.

1. L. 1. 52; L. tr. 5½/13¼.
2. Six series of scales on cheeks.
3. Second anal spine longest.

Petrus rupestris.

- L. 1. 57-63; L. tr. 11-12/19-20.
 17-18 series of scales on cheeks.
 Third anal spine longest.

I have great pleasure in associating the name of this species with that of Mr. Dimitry D. Belayew, through whose kindness we had the opportunity to examine this interesting material.

Measurements in millimetres.

Total length	..	..	..	..	253.0
Standard length	..	..	..	..	201.0
Length of head	..	..	..	..	58.0
Diameter of eye	..	..	..	..	15.0
Length of snout	..	..	..	..	17.5
Interorbital width	..	..	..	..	15.5
Depth of body	..	..	..	..	83.5
Length of 1st dorsal spine	..	..	..	..	10.0

¹ Smith, J.L.B., *Trans. Roy. Soc. S. Afr.*, XXVI, pp. 303, 304 (1938).

Length of 2nd dorsal spine	16.0
Length of 3rd dorsal spine	22.0
Length of 4th dorsal spine	27.0
Length of longest ray of soft dorsal	22.0
Length of 2nd anal spine	27.0
Length of 3rd anal spine	23.0
Length of pectoral fin	62.0
Length of pelvic fin	43.0
Length of base of spinous dorsal	69.0
Length of base of soft dorsal	37.0

Otolithus ruber (Bloch & Schneider).

1936. *Otolithus ruber*, Weber & de Beaufort, *Fish. Indo-Austral. Archipel.*, VII, p. 490.

Arabic Name: NOUVEBI.

Otolithus ruber is represented in the collection by a single specimen. The species is known from the Coast of Natal, Delagoa Bay, seas of India and the Malay Peninsula.

Sillago sihama (Forsk

1876. *Sillago sihama*, Day, *Fish. India*, p. 265, pl. 57, fig. 3.

Arabic Name: HASSOUN.

There is a single specimen, about 240 mm. in total length, of *Sillago sihama* in the collection. The species is said to attain a foot in length and is distributed from the Red Sea through the seas of India to the Malay Archipelago and beyond. It is known to ascend tidal waters.

Platycephalus indicus (Linnaeus).

1876. *Platycephalus insidiator*, Day, *Fish. India*, p. 276.
1936. *Platycephalus indicus*, Herre, *Rec. Ind. Mus.*, XLI, p. 340.

Arabic Name: WAHAR.

Platycephalus indicus is represented in the collection by a single specimen, 237 mm. in total length. Mr. Belayew also sent photographs of two other specimens.

The species is said to attain a size of at least a foot and a half. It is widely distributed in the seas of India and adjacent countries and ascends into fresh waters¹ also; its range extends from the Red Sea and the East Coast of Africa through the seas of India to the Malay Archipelago and beyond.

¹ Hora, S. L. and Nair, K. K., *Rec. Ind. Mus.*, XLII, p. 559 (1940).

**Note on the colour of the iris, of the bare orbital skin
around the eyes and of the edges of the eye-lids
in the Indian Ring-Dove.**

By M. L. ROONWAL.

(Communicated by Dr. Baini Prashad.)

In 1940¹ I summarized the available data on the characteristics of the three subspecies of *Streptopelia decaocto*, namely, *S. d. decaocto* (Frivaldszky) (the Indian Ring-Dove), *S. d. stoliczkae* (Hume) (the Kashgar Ring-Dove), and *S. d. xanthocyclus* (Newman) (the Burmese Ring-Dove).

During a collecting tour in Rajputana in October-November 1941, Dr. B. N. Chopra and myself collected a few Ring-Doves which made it possible for me to observe the colour of the iris, of the bare orbital skin around the eyes and of the edges of the eye-lids in fresh specimens. The following observations were made on a fresh male of *S. d. decaocto* shot near R. Berach at Chittorgarh (Mewar State, Rajputana) on October 8, 1941.

Iris.—The iris was crimson-pink with a very thin outer black ring, the black ring not having been previously described in any of the subspecies.

Naked orbital skin around the eyes.—The colour of the naked orbital skin was *pale grey tinged, in irregular patches, with a distinct bright lemon-yellow*. Hitherto, the yellow tinge has not been recorded in *S. d. decaocto*, but has been considered as characteristic of *S. d. xanthocyclus*.

Edges of the eye-lids.—These were yellowish-white; hitherto only red edges have been recorded.

¹ Roonwal, M. L., *Rec. Ind. Mus.*, XLII, pp. 437-452 (1940).

Paper received—21-6-1943.

Paper published—19-11-1943.

Notes sur quelques Cystocercoides de Crustacés de l'Inde.

par KNUT LINDBERG.

(Communicated by Dr. Baini Prashad.)

En examinant des Cyclopides récoltés à Nagaur et à Didvana dans l'Etat de Djodhpour (Radjpoutana) pour la recherche d'embryons du ver de Médine, un certain nombre d'entre eux ont été trouvés parasités par des Cystocercoides. Subséquentement des cyclopes pêchés à Ahmédabad (Goudjerate) ont montré une infestation semblable.

Pour autant qu'il me soit connu, une étude des Crustacés de l'Inde en tant qu'hôtes intermédiaires de Cestodes n'a jamais été faite, et nos connaissances sur les Cystocercoides mêmes, aussi bien en Europe qu'ailleurs, semblent encore très incomplètes.

On sait que ce sont des oiseaux qui servent d'hôtes définitifs aux formes larvaires observées chez les Crustacés. Il est à présumer qu'il reste toujours des Cestodes nouveaux à découvrir chez les oiseaux de l'Inde, et, autant que je sache, aucun Cystocercotide de Crustacé n'a encore été décrit dans ce pays.

Dans un *Diaptomus* unique j'ai trouvé un *Cercocystis*, 'cystique' à long appendice caudal, selon la classification de Villot, qui manifestement doit être celui de *Hymenolepis gracilis* (Zeder), parasite d'oiseaux aquatiques (canards, etc.) bien connu, dont le ver adulte a été retrouvé dans l'Inde.

D'assez nombreux *Thermocyclops hyalinus* (Rehberg) se sont montrés infestés par une deuxième forme, dont le ténia adulte semble devoir être *Hymenolepis rugosa* Clerc, espèce décrite des monts Ourals en Russie et ensuite signalée chez des pigeons à Rangoon (Birmanie).

Des Cystocercoides de dimensions plus petites et dont les crochets montraient une structure un peu différente de celle de l'espèce qui vient d'être mentionnée, parasitaient la grande majorité des *Thermocyclops vermifer* Lindberg, pêchés dans un réservoir à Ahmédabad, ce Cyclopide se rapprochant d'ailleurs beaucoup de *Th. hyalinus*.

Il ne m'a pas été possible d'identifier le quatrième Cystocercotide, car je n'y ai pas pu distinguer les crochets, s'il en existe, ce qui ne semble pas être le cas. Je l'ai figuré et décrit tel qu'il m'a apparu, et ces notes sont données dans l'espoir qu'elles susciteront des travaux plus circonstanciés sur les Cystocercoides des Crustacés de l'Inde.

Pour montrer le taux d'infestation par les parasites dans les habitats où j'en ai trouvé, je donne une liste des animaux identifiés. J'en ai examiné de plus nombreux pour le travail

présent que je n'ai fait au cours des recherches sur la draconculose à Nagaur et à Didvana. Un tableau des Cyclopidés actuellement connus comme hôtes intermédiaires de Cestodes a été donné à la fin. Il se peut cependant qu'il soit incomplet.

Cysticercus spec.

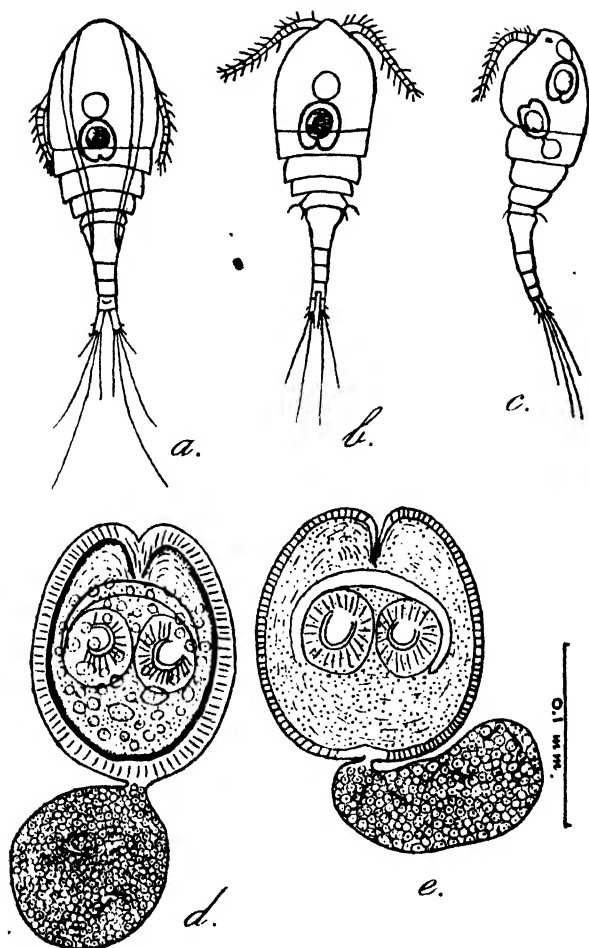


FIG. 1. *Cysticercus* sp. sans crochets.

a, *Mesocyclops leuckarti* à Cystocercoides in situ; b, *Microcyclops varicans* à Cystocercoides in situ; c, *Microcyclops varicans* montrant deux Cystocercoides; d, Cystocercoides dégagé; e, Autre spécimen.

Longueur du kyste: 118 μ à 165 μ ; moyenne 142 μ (32 mesurés).

Largeur du kyste: 83 μ à 125 μ ; moyenne 107 μ (32 mesurés).

Configuration du kyste: arrondie, ovoïde.

Queue: arrondie, vésiculaire; diamètre de 63 μ à 138 μ (8 mesurées).

Crochets du rostre: semblent absents.

Ventouses: diamètre approx. de 37 μ à 50 μ (2 mesurées).

Crochets embryonnaires: de 12 à 13 μ .

Hôtes: *Microcyclops varicans* Sars ♀ ♀ 11.

• *Mesocyclops leuckarti* Claus ♀ ♀ 25, ♂ ♂ 2, jeunes 9.

Thermocyclops hyalinus (Rehberg) ♀ 1.

Localités: Nagaur; Didvana (Radjpoutana).

Dates de la récolte: Avril 5, 6 et 7, 1942.

Les Cystocercoides se trouvaient libres dans la cavité générale du corps des Crustacés et étaient aisément visibles à l'aide d'une loupe comme de petites masses denses d'un blanc nacré, chez les animaux conservés dans de la formaline. Ils occupaient le plus souvent le premier et le deuxième segment thoracique ou s'étendaient dans les trois premiers segments, ou bien ils étaient confinés au premier segment céphalothoracique. Plus rarement ils se trouvaient dans le deuxième et troisième segments ou dans les deuxième, troisième et quatrième segments thoraciques. En général ils étaient situés du côté dorsal et se trouvaient moins souvent vers le milieu du corps. Un spécimen occupait une position transversale, l'invagination tournée vers le dos. De 14 kystes examinés à ce propos 11 avaient le pôle antérieur dirigé vers la queue de l'hôte et chez 3 il pointait vers l'extrémité céphalique. Deux *Microcyclops varicans* portaient une infestation double; tous les autres cyclopes n'hébergeaient qu'un seul Cystocercoides.

La cuticule du kyste était striée et assez épaisse. Les contours du scolex et du rostre se voyaient mal chez la plupart des spécimens. Deux ventouses se distinguaient difficilement chez quelques uns. Chez aucun je n'ai pu voir des crochets. L'appendice caudal semblait toujours de forme circulaire quand il pouvait se voir à l'intérieur de la nourrice. Après le dégagement il se déformait souvent et prenait des aspects irréguliers. Chez plusieurs je n'ai pu voir que deux des six crochets embryonnaires et chez d'autres quatre.

Cysticercus Hymenolepidis rugosae ?

Longueur du kyste: 155 μ à 209 μ ; moyenne 181 μ (22 mesurés).

Largeur du kyste: 76 μ à 130 μ ; moyenne 108 μ (22 mesurés).

Configuration du kyste: allongée, ovoïde.

Queue: longue, assez mince.

Nombre des crochets du rostre: 8.

Longueur des crochets du rostre: 97 μ (du manche à la garde 48.5 μ ; de la garde à l'extrémité de la lame 48.5 μ).

Hôte: *Thermocyclops hyalinus* (Rehberg) ♀ ♀ 47, ♂ ♂ 2, jeunes 2.

Localité: Nagaur (Radjpoutana).

Dates de la récolte:—Avril 5 et 6, 1942.

Ces Cystocercoides étaient également libres dans la cavité générale des Cyclopides et se voyaient facilement. Ils se trouvaient le plus souvent dans le premier et le deuxième segments thoraciques; dans plusieurs animaux ils s'étendaient dans les trois premiers segments et exceptionnellement ils ne dépassaient pas le premier segment céphalothoracique. La plupart occupaient une position dorsale. De 14 spécimens examinés au sujet de leur orientation l'invagination était dirigée vers la queue du cyclope chez 12, et vers sa tête chez 2. Chez tous les animaux infestés il n'y avait qu'un seul Cystocercocide.

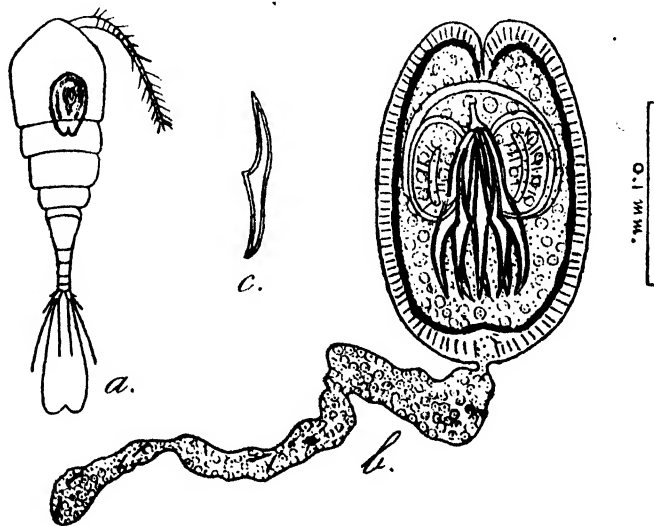
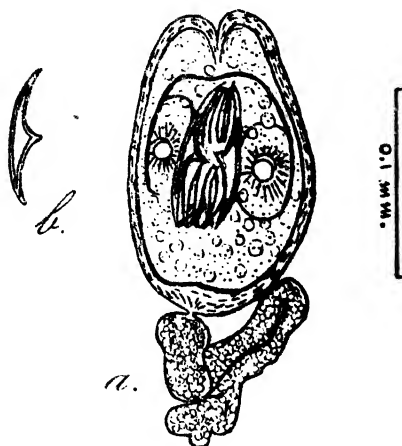


FIG. 2. *Cysticercus Hymenolepidis rugosae* ?

a, *Thermocyclops hyalinus* à Cystocercocide in situ; b, Cystocercocide dégagé; c, Crochet détaché.

La cuticule était semblable à celle de la forme précédente, mais moins épaisse. Les limites du scolex étaient peu distinctes mais deux ventouses se voyaient sans difficulté chez presque tous les spécimens examinés. Le faisceau des crochets était le plus souvent placé dans une position oblique. L'appendice caudal, en général entortillé, dépassait la longueur du kyste.

Ce Cystocercocide ne fut dans aucun cas trouvé chez un hôte appartenant à quelque autre espèce que *Thermocyclops hyalinus*.

Cysticercus spec.FIG. 3. *Cysticercus* sp. à 8 crochets.

a, Cysticercoïde dégagé; b, Crochet détaché.

Longueur du kyste: 138μ à 183μ ; moyenne 167μ (12 mesurés).

Largeur du kyste: 88μ à 103μ ; moyenne 99μ (12 mesurés).

Configuration du kyste: allongée, ovoïde.

Queue: longue, mince.

Nombre des crochets du rostre: 8.

Longueur des crochets du rostre: de 80μ à 88μ (la garde à peu près à distance égale entre l'extrémité de la lame et celle du manche).

Crochets embryonnaires: inférieurs à 12μ .

Hôte: *Thermocyclops vermifer* Lindberg ♀ ♀ 24, jeunes 2.

Localité: Ahmédabad (Goudjerate).

Date de la récolte: Avril 9, 1942.

Toujours libres dans la cavité générale des cyclopes ces Cysticercoïdes se trouvaient le plus souvent dans la partie dorsale, soit du premier et du deuxième segment thoracique, soit dans les trois premiers segments. Dans trois cas le Cysticercoïde était confiné au premier segment céphalothoracique; un seul s'étendait dans une partie des quatre premiers segments thoraciques. Un spécimen unique parmi 14 observés à ce propos avait le pôle antérieur dirigé vers la tête de l'hôte. Des 26 animaux infestés 2 présentaient deux Cysticercoïdes chacun.

Je n'ai pas observé de striation radiaire de la cuticule; celle-ci était souvent bosselée et donnait des contours un peu irréguliers au kyste. Les limites du scolex étaient peu distinctes et les ventouses difficiles à voir chez la plupart des spécimens.

Les crochets, toujours au nombre de 8, étaient de longueur inégale chez des individus différents. Dans les 12 cas où ils furent mesurés ils étaient longs de $80\ \mu$ chez deux, de $83\ \mu$ chez quatre et de $88\ \mu$ chez six. L'appendice caudal, fortement replié et très fragile, surpassait la longueur du kyste. Je n'y ai aperçu que deux des crochets de l'oncosphère et sans avoir pu les mesurer correctement.

L'habitat dans lequel furent pêchés les Cyclopides qui portaient ces Cystocercoides est le vieux réservoir hindou nommé le "baoli (puits à marches) de Dada Hari" à Ahmédaabad. En fait d'oiseaux, ce genre de réservoir ne semble guère être fréquenté que par des pigeons. C'est par conséquent parmi eux qu'il faudrait rechercher le ver adulte.

Cysticercus Hymenolepidis gracilis (Zeder)

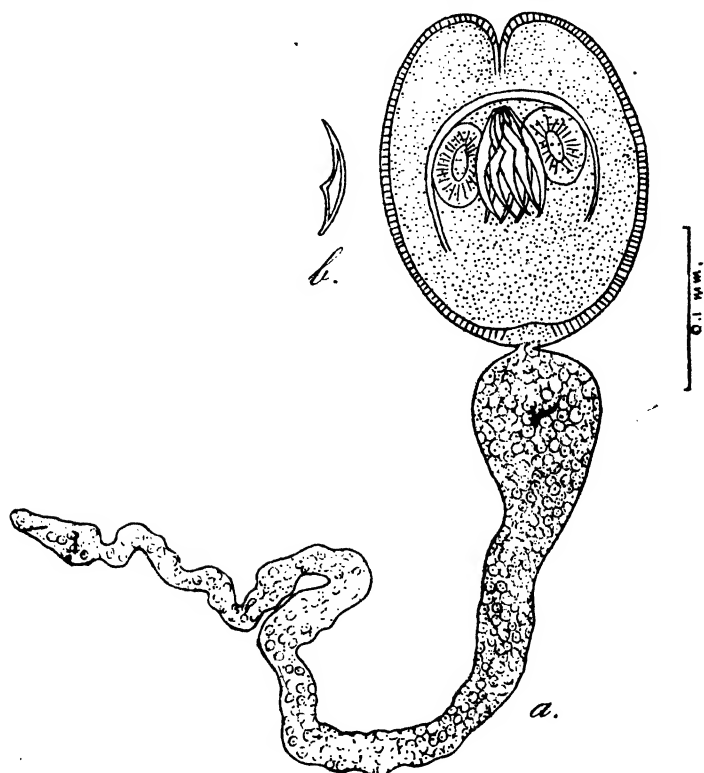


FIG. 4. *Cysticercus Hymenolepidis gracilis*.

a, Cysticercotide dégagé; b, Crochet détaché.

Longueur du kyste: 207 μ .

Largeur du kyste: 97 μ .

Configuration du kyste: ovoïde.

Queue: longue, environ 670 μ , à partie proximale renflée.

Nombre des crochets du rostre: 8.

Longueur des crochets du rostre: 75 μ (du manche à la garde

32 μ , de la garde à l'extrémité de la lame 43 μ).

Hôte:—*Diaptomus* sp. ♀ 1.

Localité:—Didvana (Radjpoutana).

Date de la récolte: Avril 7, 1942.

Je crois qu'on peut affirmer qu'il s'agit dans ce cas du Cystocercocide de *Hymenolepis gracilis*, qui du reste a déjà été trouvé chez des *Diaptomus*, du moins en Europe.

TABLEAU MONTRANT LA PROPORTION DE CRUSTACÉS INFESTÉS.

NAGAUR. Etang Guinani.

Total examinés:

Microcyclops varicans ♀ ♀ 35, jeunes 2.

Microcyclops linjanticus ♀ 1.

Mesocyclops leuckarti ♀ ♀ 131, ♂ ♂ 3, jeunes 139.

Thermocyclops hyalinus ♀ ♀ 45, ♂ 1, jeunes 3.

Infestés:

Mesocyclops leuckarti ♀ ♀ 7, jeunes 5. *Cysticercus* sp. sans crochets. 4.4 pour cent.

Thermocyclops hyalinus ♀ ♀ 21, ♂ 1, jeunes 2. *Cysticercus Hymenolepidis rugosae* ? 49 pour cent.

Thermocyclops hyalinus ♀ 1. *Cysticercus* sp. sans crochets. 2 pour cent.

NAGAUR. Puits du santou du Soufi.

Total examinés:

Mesocyclops leuckarti ♀ ♀ 86, ♂ ♂ 41, jeunes 199.

Thermocyclops hyalinus ♀ ♀ 266, ♂ ♂ 17, jeunes 26.

Infestés:

Mesocyclops leuckarti ♀ 1, jeune 1. *Cysticercus* sp. sans crochets. 0.6 pour cent.

Thermocyclops hyalinus ♀ ♀ 26, ♂ 1. *Cysticercus Hymenolepidis rugosae* ? 8.7 pour cent.

NAGAUR. Etang Djhara.

Total examinés:

Mesocyclops leuckarti ♀ ♀ 27, ♂ ♂ 5, jeunes 15.

Infesté:

Mesocyclops leuckarti ♀ 1. *Cysticercus* sp. sans crochets. 2.1 pour cent.

NAGAUR. Etang Lalsagar.

Total examinés:

Microcyclops varicans ♀ ♀ 2.

Mesocyclops leuckarti ♀ ♀ 338, ♂ ♂ 158, jeunes 213.

Thermocyclops hyalinus ♀ 1.

Infestés:

Mesocyclops leuckarti ♀ ♀ 3, ♂ 1. *Cysticercus* sp. sans crochets. 0.5 pour cent.

NAGAUR. Etang Samach II.

Total examinés:

Microcyclops varicans ♀ ♀ 504, ♂ ♂ 12, jeunes 228.

Microcyclops linjanticus ♀ 1.

Mesocyclops leuckarti ♀ ♀ 73, ♂ ♂ 14, jeunes 79.

Thermocyclops hyalinus ♀ ♀ 3, jeunes 2.

Infestés:

Microcyclops varicans ♀ ♀ 11. *Cysticercus* sp. sans crochets. 1·5 pour cent.
Thermocyclops hyalinus ♀ 1. *Cysticercus Hymenolepidis rugosae*? 20 pour cent.

DIDVANA. Etang Singui.

Total examinés:

Microcyclops sp. jeunes 14.

Mesocyclops leuckarti ♀ ♀ 277, ♂ ♂ 276, jeunes 513.

Diaptomus sp. Une dizaine.

Infestés:

Mesocyclops leuckarti ♀ ♀ 13, ♂ 1, jeunes 2. *Cysticercus* sp. sans crochets. 1·5 pour cent.

Diaptomus ♀ 1. *Cysticercus Hymenolepidis gracilis*.

DIDVANA. Tchanankoï, puits.

Total examinés:

Microcyclops sp. jeunes 2.

Mesocyclops leuckarti ♀ ♀ 2, jeunes 9.

Infesté:

Mesocyclops leuckarti jeune 1. *Cysticercus* sp. sans crochets. 9·1 pour cent.

AHMÉDABAD. Réservoir de Dada Hari.

Total examinés:

Mesocyclops leuckarti ♂ ♂ 2, jeunes 4.

Thermocyclops vermifer ♀ ♀ 28, jeunes 3.

Infestés:

Thermocyclops vermifer ♀ ♀ 24, jeunes 2. *Cysticercus* sp. à 8 crochets. 83·8 pour cent.

Cysticercus spec., sans crochets.

(1) Chez *Microcyclops varicans*:

Du total de 733 examinés d'un habitat à Nagaur, 11 infestés
 = 1·5 pour cent.

(2) Chez *Mesocyclops leuckarti*:

Du total de 1355 examinés de 4 habitats à Nagaur, 19 infestés
 = 1·4 pour cent.

Du total de 1077 examinés de 2 habitats à Didvana, 17
 infestés = 1·6 pour cent.

(3) Chez *Thermocyclops hyalinus*:

Du total de 312 examinés de 4 habitats à Nagaur, 1 infesté
 = 0·3 pour cent.

Cysticercus Hymenolepidis rugosae?

Chez *Thermocyclops hyalinus* seulement:

Du total de 306 examinés de 2 habitats à Nagaur, 51 infestés
 = 14·2 pour cent.

Cysticercus spec., à 8 crochets.

Chez *Thermocyclops vermifer* seulement:

Du total de 31 examinés d'un habitat à Ahmédabad, 26
 infestés = 83·8 pour cent.

Le taux d'infestation de ces quatre espèces de cyclopes est intéressant à observer et quelques remarques s'imposent à ce sujet.

Ce n'est pas toujours l'espèce prédominante qui montre l'infestation la plus élevée et les Cystocercoides différents ne semblent pas parasiter les Cyclopidés sans distinction.

Il est évident qu'il existe une prédilection, soit chez le cyclope (l'entrée devant se produire par la voie buccale), soit chez l'embryon hexacanthé; ou bien c'est l'enkystement même qui ne puisse se produire que dans un hôte déterminé.

Ainsi c'est la question de la spécificité des Cyclopidés dans leur rôle d'hôtes intermédiaires des helminthes qui se pose. Cette question a souvent été débattue au sujet du ver de Médine et j'ai montré que ce sont des *Thermocyclops* qui sont les hôtes habituels; ces *Thermocyclops* formant du reste presque toujours la grande majorité des Cyclopidés habitant les puits, les réservoirs et les étangs où se fait la dissémination des embryons de *Dracunculus medinensis*.

Ici nous voyons que le *Cysticercus* sp. sans crochets, parasite aussi bien *Microcyclops varicans* que *Mesocyclops leuckarti*, mais est un hôte exceptionnel chez *Thermocyclops hyalinus*. Il est intéressant de relever que dans le puits du santon du Soufi à Nagaur ce Cystocercotide infestait des *Mesocyclops leuckarti* mais était absent chez *Thermocyclops hyalinus*, bien que ces deux espèces s'y trouvaient en nombre à peu près égal.

Le Cystocercotide présumé de *Hymenolepis rugosa* par contre s'est vu exclusivement chez *Thermocyclops hyalinus* bien que cette espèce était actuellement en minorité parmi les Cyclopidés dans deux des habitats où se rencontrait ce Cystocercotide (étang Guinani et étang Samach II).

Quand un *Thermocyclops*, soit *Th. hyalinus*, soit *Th. vermifer* fut trouvé parasité par un Cystocercotide approprié cette infestation montrait un pourcentage élevé (dépassant 80 pour cent à Ahmédadab). Dans le cas de *Microcyclops varicans* et de *Mesocyclops leuckarti* par contre les taux d'infestation étaient toujours faibles.

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Paper received—21-6-1943.

Paper published—19-11-1943.

Liste des Cyclopidés connus comme hôtes intermédiaires de Cestodes.

Nom du cyclope.	Nom du Cestode.	Auteur.
<i>Eucyclops serrulatus</i> (Fischer) ..	<i>Ichthyotaenia torulosa</i> (Batsch) ..	Richard.
..	<i>Hymenolepis fasciata</i> (Krabbe) ..	Mrázek.
..	<i>Hymenolepis tenuirostris</i> (Rudolphi) ..	Mrázek.
..	<i>Hymenolepis collaris</i> (Batsch) ..	Mrázek.
..	<i>Hymenolepis coronula</i> (Dujardin) ..	Rosseter.
..	<i>Hymenolepis microsoma</i> (Creplin) ..	Richard, Rosseter.
..	<i>(Cysticercus quadricurvatus)</i> ..	Rosseter.
..	<i>Hymenolepis brachycephala</i> (Creplin) ..	Richard.
..	<i>Ichthyotaenia torulosa</i> (Batsch) ..	Linstow.
..	<i>Hymenolepis setigera</i> Frölich ..	Richard.
..	<i>Diphylobothrium latum</i> (Linné) ..	Linstow, Seimeil.
..	<i>Hymenolepis gracilis</i> (Zeder, Krabbe) ..	Rosen et Janicki.
..	<i>Hymenolepis collaris</i> (Batsch) ..	Mrázek.
..	<i>Drepanidotaenia anatina</i> (Bloch) ..	Mrázek.
..	<i>Hymenolepis collaris</i> (Batsch) ..	Mrázek, Daday.
..	<i>Hymenolepis tenuirostris</i> (Rudolphi) ..	Mrázek.
..	<i>(Cysticercus spec. sans crochets)</i> ..	Lindberg.
..	<i>Diphylobothrium mansonii</i> (Cobbold) ..	Okomura.
..	<i>(Cysticercus spec. sans crochets)</i> ..	Lindberg.
..	<i>Hymenolepis rugosa</i> Clerc ? ..	Lindberg.
..	<i>(Cysticercus spec. sans crochets)</i> ..	Lindberg.
..	<i>(Cysticercus spec. à 8 crochets)</i> ..	Lindberg.
<i>Paracyclops fimbriatus</i> (Fischer) ..		
<i>Cyclops strenuus</i> Fischer ..		
<i>Megacyclops viridis</i> Jurine ..		
<i>Acanthocyclops vernalis</i> Fischer ..		
<i>Acanthocyclops bicuspidatus</i> Claus ..		
<i>Microcyclops varicans</i> Sars ..		
<i>Meocyclops leuckarti</i> Claus ..		
<i>Thermocyclops hyalinus</i> (Rehberg) ..		
<i>Thermocyclops vermifer</i> Lindberg ..		

Un nouveau Cycloptide de l'Inde.

par KNUt LINDBERG.

Halicyclops electus, sp. nov.

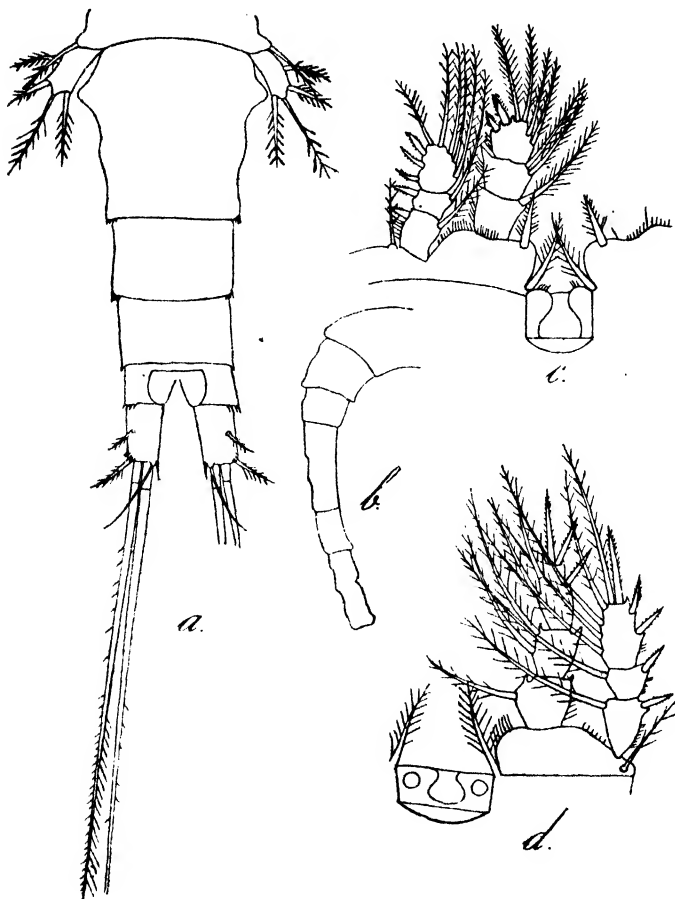
(Communicated by Dr. Baini Prashad.)

Description.—Forme grande et robuste. Longueur 969 μ , céphalothorax 617.5 μ , queue (abdomen + furca sans soies apicales) 351.5 μ ; largeur 389 μ . Segment génital se rétrécissant très légèrement d'avant en arrière; les parties latérales présentent en avant du milieu du segment une forte protubérance obtuse. Bords postérieurs des quatre segments abdominaux munis de petites dents sur les parties latérales; la dentelure semble absente sur le milieu des bords postérieurs de ces segments. Branches de la furca légèrement divergentes, presque deux fois aussi longues que larges (57 : 30 μ = 1.90 : 1). Soie latérale externe divisant la branche de la furca dans la proportion 30 : 27. Soie dorsale longue (77 μ), prenant naissance sur une petite éminence prolongeant l'extrémité de la furca. Soie apicale externe assez courte; soie apicale interne rudimentaire. Soies apicales médianes bien développées, l'interne un peu moins que deux fois aussi longue que l'externe. Elles portent de petites épines sur les parties proximales et des cils distalement. Longueurs respectives des soies apicales 50 : 367 : 651 : 14 μ . Première antenne à 6 articles. Branches des pattes natatoires triarticulées. Formule des épines 3-4-4-3. Article 3 de l'emp. 4, près de deux fois aussi long que large (58 : 30 μ = 1.93 : 1). Epine apicale interne dépassant en longueur celle de l'article et considérablement plus longue que l'épine apicale externe. Epine apicale interne : épine apicale externe 67 : 49 μ = 1.37 : 1; épine apicale interne : article 67 : 58 μ = 1.16 : 1. Epine du rebord externe de l'article terminal de l'emp. 4 de structure normale; les soies du rebord interne de cet article ont également un aspect ordinaire. Lamelle basale assez peu élargie, considérant les fortes proportions de l'espèce. Soie des coins latéraux du rebord libre de cette lamelle longue et forte. Deuxième article de P 5 à épines minces et allongées, celle du bord interne étant la plus longue. Le réceptacle séminal n'a pas pu être distingué. Le spécimen unique ne portait pas d'ovisacs. Mâle inconnu.

Habitat.—Un marais à l'eau saumâtre à Mahim, faubourg de Bombay. Une seule femelle récoltée au mois de février 1941.

Remarques.—L'espèce remarquable qui vient d'être décrite ne ressemble à aucun *Halicyclops* dont la description m'est connue. Elle se rapproche le plus de *H. aequoreus* mais

s'en distingue par de nombreuses particularités, notamment sa taille plus grande, les protubérances du segment génital et les épines effilées de l'article 2 de la cinquième patte.



- (a) P 5, abdomen et furca, face dorsale.
 (b) Première antenne.
 (c) P 1.
 (d) P 4.

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Paper published—19.11.1943.

Cyclopoïdes (Crustacés Copépodes) de l'Inde II.

par K. LINDBERG.

(Communicated by Dr. Baini Prashad.)

Eucyclops gibsoni (Brady).

Description.—Espèce plutôt petite. Longueur de la femelle ovigère de $703\ \mu$ à $798\ \mu$; largeur de $243\ \mu$ à $266\ \mu$. Ailes latérales du cinquième segment thoracique arrondies, peu prolongées, munies de fortes soies. Les bords postérieurs des trois premiers segments abdominaux semblent dépourvus de dentelures. Segment anal présentant deux types différents, étant chez les uns très fendu, chez d'autres l'échancrure anale est peu ouverte; je n'y ai pas observé de poils. Branches de la furca légèrement divergentes, de 5 à 7 fois aussi longues que larges; le plus souvent ce rapport est d'environ cinq fois et demi. Serra entièrement absente. Soie dorsale longue. La soie apicale externe n'est pas spiniforme ou l'est très peu; sa longueur est à peu près égale à celle de la soie apicale interne, ou plus souvent, légèrement inférieure à la longueur de celle-ci. Soies apicales médianes ciliées d'une façon régulière. Longueurs respectives des soies apicales de la furca d'un spécimen: $40 : 227 : 349 : 40\ \mu$. Première antenne à 12 articles, rabattue elle atteint le milieu ou le bord postérieur du deuxième segment thoracique. Les trois derniers articles sont munis d'une membrane hyaline étroite et entière ou très finement denticulée. Soie marginale du dernier article insérée en arrière du milieu de l'article. Formule des épines 2-3-3-3. Article terminal de l'endopodite de la quatrième paire de pattes environ deux fois aussi long que large. Epine apicale interne nettement plus longue que l'épine apicale externe. Elle dépasse aussi en longueur celle de l'article. Mensurations de cet article chez un individu: Article, longueur: largeur $38 : 22\ \mu = 1.73 : 1$. Epine apicale interne: épine apicale externe $48 : 38\ \mu = 1.26 : 1$. Rebord libre de la lamelle basale de la quatrième paire de pattes dépourvu de poils. Les soies des angles latéraux présentent des cils longs sur les parties proximales et des cils très courts sur les extrémités. Cinquième patte à épine interne de longueur considérable (environ $40\ \mu$ et plus), égalant même en longueur celle de la soie médiane. Cette épine est cependant, peu élargie; elle est légèrement recourbée, à concavité du côté interne. Réceptacle séminal sans caractères distinctifs. Ovisacs appliqués contre l'abdomen,

ne dépassant pas la furca mais atteignant en général son tiers postérieur. Ils contiennent de 5 à 12 gros oeufs.

Mâle. Longueur 655 à 722 μ . Branches de la furca parallèles, sans serra, de 4.53 à 4.61 fois aussi longues que larges (2 animaux mesurés). Article terminal de l'endopodite de P 4 à épines apicales de longueurs plus considérables que celle de l'article. Chez un spécimen les mensurations de cet article étaient les suivantes. Article, longueur : largeur 37 : 20 μ = 1.85 : 1. Epine apicale interne : épine apicale externe 51 : 41 μ = 1.24 : 1. Sixième patte formée d'une épine interne relativement forte et très longue (de 50 à 60 μ), surpassant en longueur celle du deuxième segment abdominal et pouvant atteindre le milieu du quatrième segment abdominal; d'une soie médiane très courte et d'une mince soie externe de direction oblique.

Habitats.—Des mares du fleuve Sarasvati, en haut des chutes d'eau de Guersoppa (État de Maïsore) et des flaques d'eau de suintement en bas des cascades (décembre 1940). Une mare près d'un torrent à Kodaikanal, montagnes Palni, avec *E. eucanthus* Sars (janvier 1939).

Remarques.—Parmi les nombreux *Eucyclops* sans serra décrits jusqu'à ce jour la forme présente semble se rapprocher le plus de *E. gibsoni* (Brady) et je crois qu'il n'y a aucun doute qu'il ne s'agit, de la même espèce. La description et les illustrations de Brady laissent cependant beaucoup à désirer, mais Sars a en 1927 retrouvé la forme décrite par Brady en 1904 et en a donné une bonne description accompagnée d'excellentes gravures. Sars insiste cependant sur la structure des épines des exopodites des pattes natatoires chez le mâle, ces épines, notamment celles du P 3 et du P 4, devant être très fortes et à rebords lisses. Chez les animaux de l'Inde je n'ai pas observé de particularité frappante chez les épines en question et leurs rebords étaient munis de cils courts comme c'est en général le cas. Les exemplaires que j'ai eu l'occasion d'examiner sont cependant plus petits que ceux de l'Afrique du Sud (Brady donnait 1 mm. comme la longueur de la femelle et Sars 1 mm. 2) et plusieurs ont une furca plutôt courte (moins de 6 fois aussi longue que large). Ces caractéristiques s'accordent avec celles données par Kiefer d'animaux rapportés de Java et de Bali et appelés par lui *E. gibsoni abbreviatus*.

Le *Cyclops nubicus* décrit en 1922 par Chappuis et récolté par lui-même dans le Soudan égyptien dans une mare près des bords du Bahr el Zeraf (affluent du Nil), dans un petit étang au sud de Fachoda et dans le Nil même, a depuis été considéré comme identique à *E. gibsoni*. Celui-ci a selon Kiefer été retrouvé aussi dans l'Afrique équatoriale.

Notre espèce a par conséquent une aire de répartition très étendue et sa présence dans le Sud de l'Inde ne manque pas d'intérêt.

Mesocyclops splendidus sp. nov.

Description.—Espèce grande et robuste. Longueur de la femelle 1160 μ (sans soies apicales). Bord postérieur du quatrième segment abdominal pourvu, sur la face ventrale, d'une rangée de petites épines, celles-ci s'étendant aussi sur les parties externes de la face dorsale. Furca à branches courtes, légèrement divergentes, environ deux et demi fois, ou moins de deux et demi fois, aussi longues que larges, à bord interne glabre. (Longueur : largeur 77 : 32 μ \approx 2.40 : 1). Soie latérale externe insérée un peu en arrière du milieu de la branche de la furca. Soie dorsale ciliée, dépassant légèrement en longueur celle de la soie apicale externe. Soie apicale interne un peu moins de trois fois aussi longue que la soie apicale externe. Longueurs respectives des soies apicales 102 : 409 : 576 : 275 μ . Première antenne à 17 articles, les deux derniers à membrane hyaline présentant des échancrures distalement au niveau du dernier article. Bord supérieur du deuxième article du maxillipède montrant un aspect perlé; le bord libre inférieur pourvu de deux petites soies au lieu d'une seule. Angle interne du deuxième article basal de la première paire de pattes muni d'une soie finement ciliée, courte mais assez forte. Lamelle basale de la quatrième paire de pattes présentant une dent assez grande et forte, dépassant le bord libre de chaque côté. Article terminal de l'endopodite de la quatrième paire de patte plus de deux fois et demi aussi long que large, à deux épines apicales, dont l'interne est un peu plus longue que l'externe (Article, longueur : largeur 83 : 30 μ \approx 2.77 : 1; épine interne : épine externe 63 : 52 μ \approx 1.21 : 1). Cinquième patte sans caractères distinctifs, à épine du deuxième article plus courte que la soie. Configuration du réceptacle séminal représentée sur la figure d'une façon approximative. L'unique spécimen manquait de sacs ovigères. Mâle inconnu.

Habitat.—Un étang eutrophique où abondaient les nénufars à Mahé (Côte de Malabar), Inde française. Récolté au mois de décembre 1940 avec d'assez nombreux *Mesocyclops leuckarti* Claus.

Remarques.—Comme il vient d'être dit il n'a été trouvé qu'un seul exemplaire de cette espèce remarquable.

Il est toujours peu satisfaisant d'avoir à caractériser une nouvelle forme d'après un individu unique et surtout lorsqu'il s'agit d'un proche parent d'une espèce telle que *M. leuckarti* qui est déjà très variable.

L'animal décrit ici présente cependant une particularité frappante qui à elle seule la différencie de toutes les formes variantes de *M. leuckarti*, la présence d'une soie au niveau du deuxième article basal de P 1.

L'absence ou la présence de cette soie, qui chez les Cyclopides est d'une grande constance, donne à cette particularité une valeur diagnostique. On peut rappeler à ce sujet la diffé-

enciation de *Tropocyclops prasinus* (Fischer) et de *Tropocyclops confinis* Kiefer. Le spécimen étudié ici se distinguait d'ailleurs déjà à un examen superficiel des *M. leuckarti* parmi lesquels il se trouvait, de sorte que je l'en avais séparé aussitôt, croyant d'abord avoir affaire à un *Macrocyclops*.

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LISTE DES FIGURES.

FIG. 1. *Eucyclops gibsoni* (Brady).

a, ♀ Segment anal et furca; b, ♀ P 5 et segment génital; c, ♀ Première antenne, derniers articles; d, ♀ P 1; e, ♀ P 4; f, ♂ P 5 et P 6; g, ♀ Segment anal et furca; h, ♀ P 5 et segment génital; i, ♀ P 4.

a-f, Spécimens d'une mare du fleuve Sarasvati à Guersoppa.
g-i Spécimen d'une flaque d'eau de suintement en bas des chutes d'eau à Guersoppa.

FIG. 2. *Mesocyclops splendidus* sp. nov. ♀

a, Furca; b, P 5 et segment génital; c, Base de P 1; d, Lamelle basale de P 4; e, Article terminal de l'endopodite de P 4; f, Première antenne, derniers articles; g, Extrémité du maxillipède.

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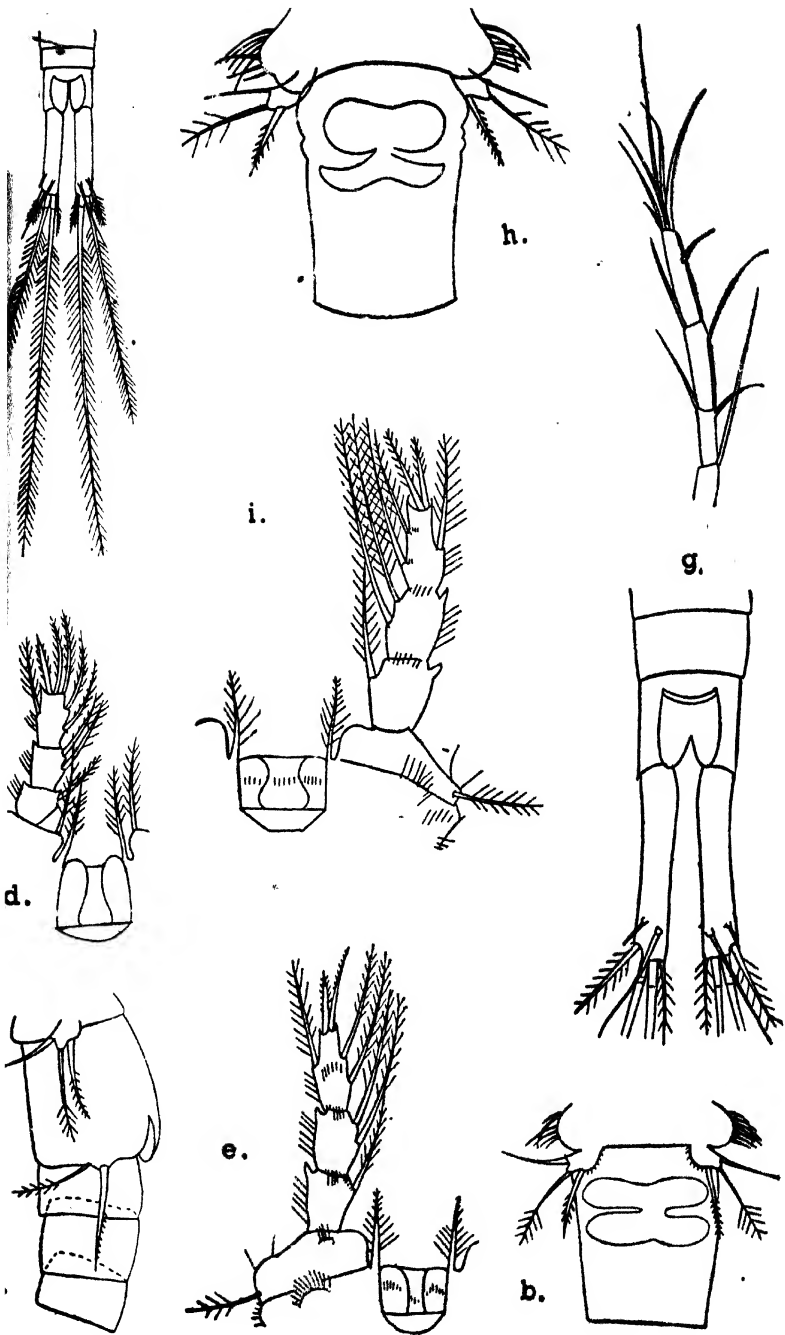


FIG. 1.

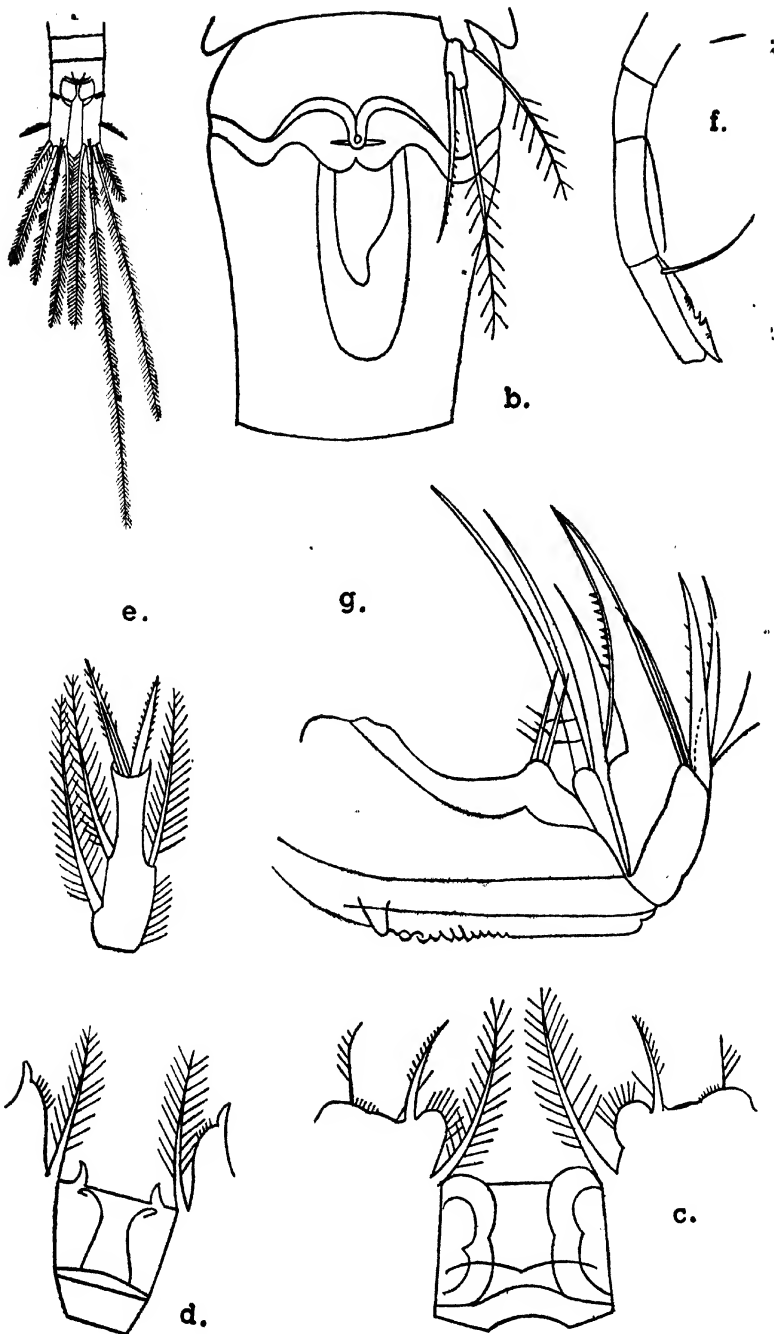


FIG. 2.

Bengal Coiled Basketry.

By K. P. CHATTOPADHYAY.

Coiled basketry, of the types described in standard works, is associated with sewing in technique, just as ordinary plaited basket-work is linked to weaving. An important exception is formed by what may be termed Bengal coiled basketry. Here the technique is allied to carpentry. The Bengal coiled baskets are made of cane of the local variety. These canes do not easily split into strips, under the knife, like Malacca cane. On the contrary, when soaked in water, as is done for the Malacca variety before splitting them, the Bengal cane develops some mucilage and prevents easy slicing up into slips.

For the construction of a coiled basket, the bundle of cane is first of all soaked in water for a day and a night. The end



FIG. 1. Cane with end shaved off.

from which the work is to be started then has half its thickness shaved off with a knife, to a length of about a foot. It is next coiled into a spiral. At first as each half turn is completed a hole is made with an awl (Phonr), and a small bamboo pin is driven in (sketch 1a) to keep the two portions together. The



FIG. 1a. The first half coil with *Khil*.

blow is given with a wooden hammer and has to be sharp and firm; otherwise the point of the bamboo nail (*Khil*) cannot go through and is damaged. As indicated in the sketch (sketch 1k), the *Khil* is wedge-shaped near the point, but rectangular above it. The *Khil* is made from bamboo strips, with the skin of the bamboo whole, on one side. For the lower portion of the coil,

near the base, short and narrow pins (*Khil*) are used, about three-fourths of an inch long and less than a quarter inch wide. For



FIG. 1k. *Khil* or bamboo pin, actual size.

the upper layers, larger *Khils*—nearly an inch and a half long and a quarter of an inch wide—are employed.

Owing to the shape of the *Khil*, it cannot go through the second coil easily, while the next coil, pressing on the head of the nail, prevents it from coming out. At first, the smaller *Khils* pierce and bind together only two coils, of half the thickness of the cane. As the whole cane is reached, the larger pins are used, and hammered in every three or four inches. The *Khil* generally pierces three coils at once, but sometimes only two may also be thus pinned together. Coiled baskets of this type invariably have a somewhat flat bottom, rising into sloping sides to form a hemispherical bowl-like shape. Sometimes, the top portion may even bend inwards to some extent. The base is made by simply superposing one coil fully on the one preceding and pinning them together as described below. In the flat portions the *Khil* is driven in, holding it in the plane of the coil but inclined to the edge of the cane (sketch 1b), away from the direction in



FIG. 1b. *Khil* inserted at an angle.

For convenience of illustration, the adjacent coils have been drawn separated by gaps. Actually they are pressed together. For the same reason, only one pin has been shown in 1b.

which the coil is proceeding. The straight edge of the point of the *Khil* remains on the inner side, describing by this expression the side on which the work has been completed. The pull of the two coils bound by the *Khil* does not allow it to straighten up and get loose. If the pin had been fixed inclined the other way, the pull of the coils would have sent them apart and loosened the pin.

After the base has been built up in this fashion the sides have to be constructed, sloping or bulging outwards. For this purpose, the cane of each new coil is placed outwards with only half of it on the preceding coil, and the other half projecting outside. For a slope inwards, the new coil is placed only half inside. In both the cases, the *Khil* is driven straight down, holding it in the plane of the two adjacent coils. For an outward bulge, the *Khil* is driven inward, and conversely, for a slope the other way. At the end, the cane is again shaved off for a short length and fixed firmly by pins, the end going under a coil. For greater firmness the basket is bound with cane slips radially. The projecting points of the *Khils* are then trimmed off. The flat base, it is to be noted, is sometimes made slightly concave to start with, to ensure greater stability to the basket. The firm layers of cane generally make these baskets practically watertight.

The hemispherical baskets are known in Bengal as *dhāmā* (sketch 2) and are used mostly for storing and carrying grain.

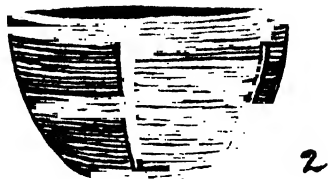


FIG. 2. The Bengal coiled basket *dhāmā*.

Small baskets of standard size are made for measuring grain. These are known as *Kunke* or *Rek*, and hold one-third of a seer. They have a flat base, rising with an outward bulge and ending in a slope inwards, to form a comparatively narrow aperture. Pans of bazar balances, used by grain-sellers, are also often made in this fashion. These are shallow concave circular pieces. Shields are also made in the villages in Bengal in this manner. First of all a convex circular plate is made, and then a slightly concave edge is added, the entire shield being one foot and a half to two feet in diameter. The whole of it is then strengthened with cane slips. A handle of such strips, or of rope is made inside. These shields were used in the old days (before fire-arms became common) in fighting. The warrior generally

carried one of these shields (Dhāl) and several long narrow simple spears of bamboo (Sarkī), with the point hardened in fire. They have survived in the outlying villages and are even now used in displays and occasional fights.

From enquiries made by the writer in Midnapore (West Bengal), 24-Parganas and Nādia (Central Bengal) and Faridpore (East Bengal) it appears that these baskets are made only by the cobbler caste known as *Muci* or *Riṣi* as they prefer to style themselves. The Dom, who works on bamboo, and also with cane slips to make and mend modern furniture, is not acquainted with this technique and does not take to it. The Mahali basket-weavers of Chotanagpore are also not acquainted with it.

A certain amount of coiled cane basketry is done also in Northern India outside Bengal. But these are made in the usual way, by tying or sewing the coils with slips of cane or other material. The cane helmets made by some of the Assam hill tribes are also built up without pins. The special mode of making coiled basketry described in this note, therefore, seems to be peculiar to Bengal. The method of pinning adjacent coils is comparable to the fitting together of planks in carvel-built boats.

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**Systematic Position of a Common Tree Fern of the
Eastern Himalaya with a note on the genus
Cyathea.***

By K. BISWAS.

There exists considerable confusion regarding the classification of the Ferns and Fern-allies of India and Burma. The author, as a result of his examination of thousands of specimens in the Herbaria of Calcutta, Kew, British Museum (Natural History), London and Edinburgh, finds that many genera, if not families, of ferns need critical and careful revision.

Names of several species of tree ferns of the Eastern Himalayas belonging to the genus *Cyathea* appear to be dubious. In fact, the position of the genus *Cyathea* itself is uncertain. Copeland advocates reduction of the genera *Alsophila* and *Hemitelia* to *Cyathea* on the ground that no natural separation can be made on the structure of indusial characters. *Cyathea* is characterized by completely covered indusium, whereas *Alsophila* is distinguished by the entire absence of indusium, and *Hemitelia* stands in between with its hairy, partially covered, sub-calyciform or one-sided indusium. No other well-marked distinguishing permanent morphological characters have been recorded so far which justify separation of these three groups of tree ferns. The revision of the genus *Cyathea* has, therefore, resulted in establishing a set of hair-splitting differences. But judged from the character of indusium alone, such differences are not of sufficient practical value. The indusial characters together with the general nature of the fronds and differentiating characters of the segments and nature and growth of the trunk and costa are important characters to be taken into account in retaining or reducing the three genera. I consider the genus *Cyathea* as a genus distinct from *Alsophila* and *Hemitelia*.

Holtum⁵ follows Copeland's view of combining the three genera into one—namely, *Cyathea*. Christensen² keeps the three genera distinct and remarks, 'In my opinion Domin is wrong, however, in transferring all species to *Cyathea*.'

The different forms or varieties of the tree fern, *Cyathea spinulosa*, one of the most common tree ferns in the Sikkim Himalaya, have hitherto been considered as three or more distinct species under different names. John Scott⁶ separated *Cyathea decipiens* (Scott) Clarke & Baker, from *C. spinulosa*

* Read at the 29th Session of the Indian Science Congress Association at Baroda, 1942.

and made it a new species of the genus *Hemitelia*—*H. decipiens* Scott. Clarke and Baker⁴ considered it to be a species of *Cyathea*. Beddome¹ described it as *Amphicosmia decipiens* Bedd. Carl Christensen records the specific name as *Cyathea decipiens* (Scott) Clarke & Baker. Beddome remarks, 'I do not feel certain it is distinct from *Cyathea spinulosa* as I have not seen the involucre in very young state.' C. B. Clarke³ rightly remarks, 'I have no hesitation with J. Scott's description, figures and type specimen before me in uniting *C. spinulosa* J. Scott to *H. decipiens*. The two are so far as I can see identical.' Apart from the minor distinctions pointed out by Scott the main difference between *C. spinulosa* and *H. decipiens* as described by him is the membranous, deciduous, sub-calyceiform structure of the involucre which sometimes is in the form of a scale at the base of the sorus. This character is based on his type sheet—which is an old one bearing a portion of the frond with mature burst sori and hence the involucre is in the form as described above by him. The other specimens of *H. decipiens*, such as those of Clarke No. 26359, 1875 and J. S. Gamble 281A from Kalimpong—Bhutan, 4,000 ft., gathered from the same plant as No. 26359 of Clarke, indicate that the involucre covers the sori completely in the younger stages. Beddome rightly doubted the status of *H. decipiens* of Scott as a different species from *C. spinulosa*. As a result of my examination of the Herbarium materials of *Cyathea* and *Hemitelia* at Kew, British Museum (Natural History), Edinburgh and Calcutta Herbarium and numerous living plants at various stages of growth in their natural habitats in such localities as Sikkim (proper), Mungpoo, Kalimpong, Darjeeling and its neighbourhood at different elevations, I consider *H. decipiens* of Scott (*C. decipiens*) to be only a form of *Cyathea spinulosa* Wall. Minor variations in morphological characters observed by Scott are due to age and climatic and edaphic conditions. These characters do not, therefore, justify specific rank of Scott's *H. decipiens*. On the above grounds, I consider *Cyathea decipiens* to be identical with *Cyathea spinulosa*, the widely distributed Asiatic species. In my description of the species in this paper I have incorporated all the variations observed in different ecological forms of the plants examined by me in dried state and found growing under different conditions between 1,000 and 8,000 ft. in the shady sub-tropical or sub-temperate temperate rain forests of the Eastern Himalayas.

Cyathea Brunoniiana (Wall.) Cl. (*H. Brunoniana*) also appears to be a form of *C. spinulosa*. *C. spinulosa* has thus only two different forms, namely, *forma-decipiens* and *forma-brunoniiana*. In addition to these two forms a variety—*Var. Scottii*—can be taken as a distinct variety if not a species as suggested by Clarke and Baker.

Key to the varieties and forms of *C. spinulosa*—Lofty tree fern, caudex simple or dichotomously branched with strongly

armed deep brown or purple stipes; fronds unbranched, pinnate or decompoundly pinnate.

Veins 1-3 forked or pinnate with 3-5 veinlets, indusium covering the whole sorus or breaking irregularly as semi-calyciform bilobed cupule *C. spinulosa*.

A. Veins with many 3-branched veinlets concomitant with the deeper crenations of the pinnules *C. spinulosa* var. *Scottii* Clarke.

B. Veinlets 2-4 branched, involucre globose.

(a) 3-4 branched, indusium deciduous, hemispheric cup varying in size from a small scale at the base of sorus to large semi-calyciform lobed or irregularly broken structure *forma-decipiens*.

(b) Veinlets 2-branched, rarely 3-branched, indusium, a shallow cup soon breaking down to sub-petalliform scale, finally appearing as a half-cup with lacerate margin *forma-brunoniana*.

Cyathea spinulosa Wall.

Synonyms :—*C. decipiens* (Scott) Clarke & Baker in *Journ. of the Linn. Soc. (Bot.)*, Vol. XXIV, p. 409, 1888; *Amphicosmia decipiens* (Scott) Beddome, F.B.I., p. 10, 1883; *Hemitelia decipiens* J. Scott, in *Trans. Linn. Soc.*, Vol. XXX, p. 33, t. 14, 1875.

A tall tree fern 30-40 ft. high, caudex sometimes dichotomous, stipes brown, deep brown or purple, strongly aculeate, paleaceous towards the base, muricated, furfuraceous and of a pale brown colour upwards; the aerial stem below always covered by matted mass of strong adventitious roots and upwards with the strongly armed bases of the persistent stipes, terminating in a beautiful crown of pale green younger fronds; fronds 10-12 ft. long, glabrous, somewhat coriaceous, sub-flaccid with small bullate scales on the costules, unbranched, pinnate or decompoundly pinnate, tripinnatifid, primary pinna 20-30 in. long, 9-12 in. broad, oblong lanceolate, acuminate, pinnules 4-8 in. long and $\frac{1}{2}$ -1 in. broad, segments linear-oblong, acute, falcate, serrate or serrulate, with or without bullate scales on the costules beneath;

veins 1-3 forked or pinnate, with 3-5 veinlets, receptacle elevated, globose; sori conspicuous, copious, close to the costules and below or upon the axil of the lowest fork; indusium or involucre globose, covering (when young) the whole sorus, thin, membranous, fragile and soon breaking irregularly appearing as semi-calyciform bilobed cupule.

Distribution in India and Burma.

In the Himalayas from Nepal to Burma; abundant in Sikkim (Mungpoo), Khasia and Jaintia Hills from 2,000 ft. to 6,000 ft. in elevation. It is also reported from the Madras Presidency—Vizagapatam, Rampa Hills (2,000 ft.), Malabar and Canara; Central Provinces (Pachmarhi) and Burma, Amherst District, Taok, Downe Hills, 3,500 ft., J. H. Lace. Wallichian Sheet No. 178 bears specimen from 'Nepal montibus, 1821'. Burma between Sadon and the Yunnan Chinese border at Chingtitong and Kambaiti, 1922, J. F. Rock.

Cyathea spinulosa Wall. var. *Scottii* Clarke.

It is perhaps a distinct species as noted by Clarke and Beddome (cf. Clarke, *Trans. of the Linn. Soc.*, Series 2, Vol. 1, p. 431, 1880), the larger pinnules with many distinctly 3-branched veinlets concomitant with the deeper crenation is sufficiently quite distinct character to separate it as a species. But further field observations would be necessary before giving it a status of a distinct species. For the present I consider it to be a distinct variety as Clarke has adopted.

Forma-decipiens (Scott) Clarke & Bak.—A lofty tree fern about 30-40 or more ft. high, stipes of mahogany brown colour, strongly aculeate at the base, very prickly on the main and secondary rachises, tertiary rachis (that of the pinnules), bullate scaly, not pubescent; fronds 10-12 ft. long, more or less coriaceous, greyish green; pinnules 4-8 in. long, $\frac{3}{4}$ -1 in. broad, glabrous or nearly so, segments linear-oblong, acute, falcate, serrate, sometimes much narrowed where fertile; veinlets forked or often 3-branched and even 4-branched in the sterile portions; sori prominent, copious in two rows close along the main veins or costule of the segment; involucre deciduous, a hemispheric cup varying in size from a small scale at the base of the sorus to large semi-calyciform—2-leafed or irregularly broken. J. Scott in *Linn. Trans.*, XXX, 33, t. 14; Bedd., F.B.I., *Amphicosmia decipiens* (J. Scott under *Hemitelia*), p. 10, 1883; his t. 311 shows the veins and bullate scales correctly, but not the involucre (after Beddome). 'Differs from the next in being much more prickly and in the segments being generally longer and narrower. I do not feel certain it is distinct from *Cyathea spinulosa* as I have not seen the involucre in very young state.'—Beddome.

Distribution in India and Burma.

Sikkim and Bhutan, 1,000 to 4,000 ft. Khasia below Nungklow. Central India (Pachmarhi, Mrs. Morris' 1883). India bor. Recorded for the first time from Burma.

C. B. Clarke and J. G. Baker in their contribution 'Supplementary Note on the Ferns of Northern India', *Journ. of the Linn. Soc. (Bot.)*, Vol. XXIV, p. 409, 1888, adopted the present nomenclature.

Forma-brunoniana (Wall.) Clarke et Bak.—A large tree fern usually 10–25 ft., sometimes up to 30–40 ft. high with a sub-horizontal crown; prickly and muricated upwards. Fronds pinnate, rachis of pinnae often free from prickles; rachis of pinnules beneath more or less crisped; veinlets 2-branched, rarely 3-branched; indusium membranous—at first globose, soon breaking down and reduced before the sori are ripe to a hemispheric cup or sub-petalliform scale appearing as a half cup with lacerate margin while the spores are dispersing. Sori close along the main vein or costule of the segment. *Amphicosmia Brunoniana* (Wall. under *Alsophila*) Bedd., F.B.I., p. 10. Beddome notes, 'The specimens for which Mr. Clarke gives the locality "Deccan" is a specimen of *Cyathea spinulosa* collected at Mendeb in Canara by Dr. Richie.'

General Distribution in India and Burma.

East Nepal—Sikkim to Bhutan extending abundantly in Khasia and Manipore (1881, Wall!), Burma, 4,000 to 8,000 ft. in elevation. Mergui? Griffith? Between Sadon and Yunnan border No. 7464, F. Fock. In India—East Himalaya to Burma and Yunnan.

This form is recorded here for the first time from Burma.

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Paper received—21-8-1942.

Paper published—29-11-1943.



A group of young and old trees of the Tree Fern *Cyathia spinulosa* Wall, as grown in the Lloyd Botanic Garden, Darjeeling.

Photo by K. Biswas.

**Observations on two Coccidia, *Eimeria trionyxae* n.sp.
and *Eimeria triangularis* n.sp., from the Intestine
of the Turtle *Trionyx gangeticus* Cuv.**

By MUKUNDAMURARI CHAKRAVARTY and AMIYA BHUSAN KAR.

(Communicated by Dr. K. Biswas.)

With a view to study the protozoan parasites of the turtles, two specimens of *Trionyx gangeticus*, purchased from one of the Calcutta markets, were examined. The first specimen harboured the oöcysts of two distinct species of *Eimeria* in its alimentary canal, while the second one was infected with one of them alone. From the literature extant on the subject, we find that only eight species of *Eimeria* are known from the turtles and tortoises up till now. They are: *E. delagei** (Labbé, 1893) from *Emys orbicularis* (*Cistudo europea*); *E. legeri* (Simond, 1901) from *Lissemys punctata granosa* (*Emyda granosa*); *E. mitraria*† (Laveran and Mesnil, 1902) from *Chinemys* (*Damonina*) *reevesii*; *E. broderi* Cerruti, 1930, from *Testudo graeca*; *E. dericksoni* and *E. amydae* Roudabush, 1937, from *Amyda spinifera*; *E. chrysemidis* Deeds and Jahn, 1938, 1939, from *Chrysemis marginata*; and lastly, *E. koormae* Das-Gupta, 1938, from *Lissemys punctata*. Of these, only two (*E. legeri* and *E. koormae*) are from India and only one (*E. mitraria*) from Ceylon.

The coccidian parasites described in this paper are new to science as they do not resemble any known species of *Eimeria* and so far no other coccidian parasite has been reported from this turtle. We have named the coccidians *Eimeria trionyxae* and *Eimeria triangularis* after the host and the shape of the oöcyst respectively.

DESCRIPTION.

1. *Eimeria trionyxae*† n.sp.

The oöcysts were found in large numbers in the rectum of the turtles. The majority of the oöcysts contain within them the unsegmented zygote which eventually gives rise to the sporoblasts, a residual body being left at the centre. Both the immature and the mature oöcysts are spherical in shape like that of *E. legeri* and *E. koormae* and measure 14.42–18.54 μ ,

* *E. delagei* var. *marginata* has been reported from *Chrysemis marginata* by Deeds and Jahn, 1938.

† Also reported by Deeds and Jahn from *Chrysemis marginata*, 1938.

‡ The second specimen of *T. gangeticus* was heavily infected with this coccidian only which enabled us to describe the endogenous stages.

with an average of 16.48μ . The unsegmented zygote, measuring 12.36μ , is also spherical and contains a large number of refringent globules (fig. 1).

The four sporoblasts, when first formed, are oval in shape with a granular cytoplasm; later they are surrounded by a membrane and are transformed into a sporocyst (figs. 2, 3). The latter when fully formed, is pyriform in shape having rounded posterior and pointed anterior ends, unlike that of *E. legeri* and *E. koormae*. The sporocysts measure $12.36\mu \times 6.18\mu$. The sporoplasm within the sporocysts becomes differentiated into two narrow and elongated sporozoites having rounded posterior and tapering anterior extremities. The sporocystic residue is also present (fig. 4).

The endogenous stages are scattered throughout the epithelial cells of the intestine of the host. The sporozoites infesting the epithelial cells could not be found by us. The earliest forms observed are the trophozoites, measuring $7.42\mu \times 4.12\mu$; they are ovoid bodies with one of the ends rounded and the other tapering (fig. 5). The tapering end, which seems to be the anterior, stains dark and is directed towards the submucosa. The spherical nucleus is placed near the middle region of the trophozoite.

The schizonts, measuring 8.24 – 14.42μ in longest diameter, are spherical or oval in shape and contain a large number of deeply stained nuclei of uniform size (fig. 6). When fully matured they give rise to the merozoites.

The arrangement of the merozoites is a constant feature. They are arranged with one of their ends, presumably the anterior, directed towards the periphery of the mature schizont while their posterior ends converge towards the centre (fig. 7). This can be compared to the rosette formation. There is a cytoplasmic residue at the centre of the schizont. A fully formed merozoite (fig. 8) has an elongate club-shaped body, with the anterior end slightly tapering than the posterior, which is rounded. It has a clear homogeneous cytoplasm and a centrally placed nucleus which is rectangular in shape, a character peculiar to this coccidium. The merozoites measure 4.12 – 6.18μ in length and about 1μ in breadth.

Although the mature microgametocytes have the same form as the schizont, they can be easily distinguished from the latter by the structure of the nuclei. The nuclei are smaller in size and vesicular in structure (fig. 9). Later they become elongated giving rise to thread-like bodies, the microgametes (fig. 10). The latter consist of a small rod-like body with a long flagellum attached to one end.

The macrogametocytes can be easily distinguished from other endogenous stages by the granular nature of the cytoplasm (fig. 11). The macrogametes are spherical in shape with a circular nucleus. The nucleus has a nuclear membrane and a

small karyosome placed eccentrically within it. In a fully mature macrogamete the nuclear membrane becomes drawn out into a cone at one point and the cytoplasm shows patches of darkly stained granules (fig. 12).

Diagnosis.

• Systematic position—*Eimeria trionyxae* n.sp. (Coccidiida, Eimeriidae).

• Diagnostic characters—Oöcysts are spherical measuring $14.42\text{--}18.54\mu$, with an average of 16.48μ ; sporocysts measuring $12.36\mu \times 6.18\mu$, are pyriform in shape having pointed anterior and rounded posterior ends; both oöcystic and sporocystic residue are present; the sporozoites are narrow and elongated with a centrally placed nucleus; the merozoites have a clear cytoplasm and a rectangular nucleus; the sporulating schizont is a typical 'rosette'.

Host—*Trionyx gangeticus* Cuv.

Seat of infection—Intestine.

Locality—Calcutta.

2. *Eimeria triangularis* n.sp.

Only a few oöcysts were found in the rectum of the first specimen of the two turtles examined. No endogenous stage of this coccidium could be seen by us.

The oöcysts are triangular in shape with the sides arched (fig. 14). Some of the oöcysts, however, sometimes appear somewhat spindle-shaped (fig. 13) as seen at certain angle. The zygote within the immature oöcyst is spherical in outline and contains several refringent globules as in the other form. The oöcysts measure $10.3\text{--}14.42\mu$ in longest diameter. They are without any micropyle and oöcystic residue.

The sporoblasts are developed from the unsegmented zygote if the oöcysts are kept in 1% chromic acid solution for one day. The sporocysts are oval when they first appear, but become spindle-shaped as soon as they mature (fig. 15). The sporocystic wall is very thin and the sporocyst contains two elongated sporozoites having a residual mass in between them. The sporocysts measure $10.3\mu \times 4.12\mu$.

Diagnosis.

Systematic position—*Eimeria triangularis* n.sp. (Coccidiida, Eimeriidae).

Diagnostic characters—Oöcysts are triangular in shape measuring $10.3\text{--}14.42\mu$ in longest diameter; sporocysts are spindle-shaped and measure $10.3\mu \times 4.12\mu$; sporozoites are elongated bodies; only sporocystic residue is present.

Host—*Trionyx gangeticus* Cuv.

Seat of infection—Intestine.

Locality—Calcutta.

Comparative diagnostic characters of different species of *Eimeria* from turtles and tortoises is given in the following table.

We are indebted to Mr. D. Mukherji, who helped us in various ways. Thanks are also due to Prof. H. K. Mookerjee for permitting one of us (A. B. Kar) to carry on research work in this laboratory.

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EXPLANATION OF TEXT-FIGURES.

All figures are magnified 1666 times except otherwise stated.

Figures 1–12. *Eimeria trionyxae* n.sp.

- Fig. 1—An immature oöcyst from a fresh smear.
 Figs. 2 & 3—Oöcysts showing the formation of the sporocysts from fresh smear.
 Fig. 4—A fresh mature oöcyst. Oöcystic residue not shown.
 Fig. 5—A trophozoite from a section.
 Fig. 6—A schizont showing nuclei of uniform size from a section.
 Fig. 7—A group of merozoites from a section. Note the rosette-like arrangement of the merozoites.
 Fig. 8—A stained merozoite. $\times 3500$.
 Fig. 9—Microgamete formation from a section.
 Fig. 10—Microgametes from a section.
 Fig. 11—A macrogametocyte from a section.
 Fig. 12—A mature macrogamete from a section.

Figures 13–15. *Eimeria triangularis* n.sp.

- Fig. 13—An early oöcyst from a fresh smear.
 Fig. 14—A fresh mature oöcyst.
 Fig. 15—A single sporocyst showing the sporozoites from a fresh smear; sporocystic residue not shown.

* Papers are not available to authors.

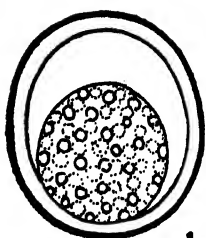
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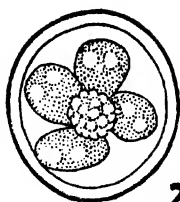
TABLE I.

Parasite.	Oöcyst.			Sporocyst.			Locality.*	Host.
	Form.	Size in micron.	Residue.	Form.	Size in micron.	Residue.		
<i>E. delagei</i> * (Labbé)	Ovoid	22X16-17	Present	Oval	....	Present	....	<i>Emys orbicularis</i> .
<i>E. legeri</i> * (Simond)	Spherical	16-18	Absent	Oval	....	"	India	<i>Lissemys punctata</i> <i>trivasa</i> .
<i>E. mitraria</i> (Javanese and Mesnil).	Mitre-like with four or five ornamental projections.	10-15 in diam.	"	Ovoid	....	"	Ceylon and Okoboji, U.S.A.	<i>Chinemys reevesii</i> and <i>Chrysemis marginata</i> .
<i>E. broadi</i> Cerruti	....	18-20X29-32	....	....	....	....	....	<i>Testudo graeca</i> .
<i>E. amydas</i> Roundabout.	Oval	16-72-23-66X 12-32-16-72 with an average 19-55X14-60.	Present	Elliptical	2/3 of oöcyst	Present	U.S.A.	<i>Amyda spinifera</i> .
<i>E. dericksoni</i> Roundabout.	Sub-spherical	12-32-16-72X 10-56-15-84 with an average of 14-53X12-35	"	"	1/2 of oöcyst	"	"	"
<i>E. chrysemidis</i> Deeds and Jahn.	Oval	23X15	....	....	....	....	Okoboji, U.S.A.	<i>Chrysemis marginata</i> .
<i>E. koornae</i> Das Gupta.	Spherical	14	Absent	Spindle-shaped	10X4-5	Present	Jessore, Bengal.	<i>Lissemys punctata</i> .
<i>E. trionyxae</i> n.sp.	"	14-42-13-54 average 16-43	Present	Pyriiform with pointed anterior and rounded posterior ends.	12-36X6-18	"	Calcutta	<i>Trionyx gangeticus</i> .
<i>E. triangularis</i> n.sp.	Triangular	10-3-14-42 in longest diameter.	Absent	Spindle-shaped	10-3X4-12	"	"	"

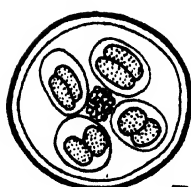
* The description of sporocysts are taken from the figures.



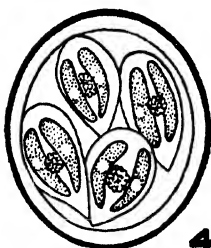
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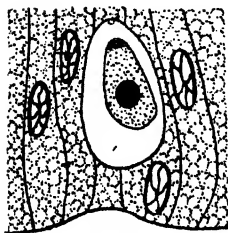
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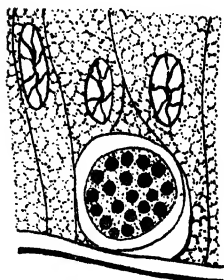
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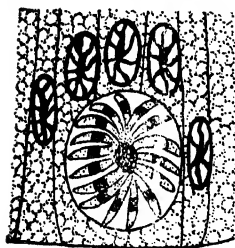
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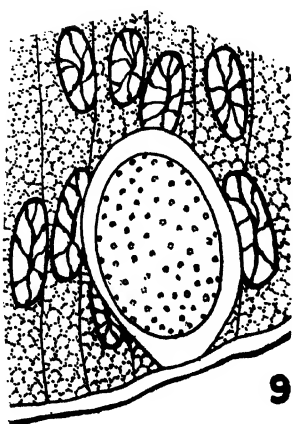
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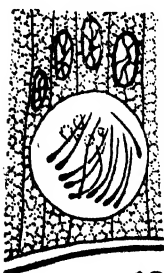
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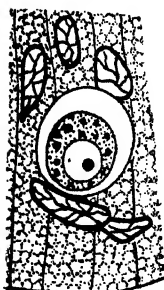
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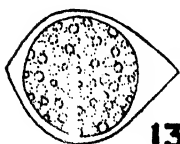
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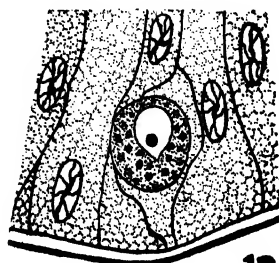
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Notes on the dorso-lumbar veins in the common Indian toad *Bufo melanostictus* Schneider.

By JNANENDRA LAL BHADURI and KRISHNA CHANDRA GHOSE.

(Communicated by Dr. S. L. Hora.)

INTRODUCTION.

No vein appears to be more susceptible to variation in the common Indian toad *Bufo melanostictus* than the dorso-lumbar vein, and probably this is also true of other species of *Bufo*. In the study of the venous system of frogs and toads in the Practical Classes we pay little attention to this vein, nevertheless its importance cannot be ignored in a comparative study, especially of the two common genera *Rana* and *Bufo*. No doubt the origin and formation of the dorso-lumbar veins show a great deal of variation in all frogs and toads, more specially in the latter (*vide infra*). The present note, however, mainly concerns the study of variations in the number of the dorso-lumbar veins that directly open into the renal-portal vein (Jacobson's vein) in *B. melanostictus*.

The numerical variation in the dorso-lumbar veins has been reported by Al-Hussaini (1939) in the two species of Egyptian toads, *B. regularis* and *B. viridis*. He states that 2—4 dorso-lumbar veins join the renal-portals either singly or in pairs. Starks and Howard (1929) note that there are two or more dorso-lumbar veins in the American toad *B. americanus*. In view of the great variability in the dorso-lumbar veins in *Bufo*, both in disposition and in number on each side, an attempt has been made to determine what is the most commonly occurring number in *B. melanostictus*, which is taught as a Salientian type in some Indian Universities.

ACKNOWLEDGMENT.

We are indebted to Rai Bahadur Dr. S. L. Hora, D.Sc., F.A.S.B., F.N.I., Director of Fisheries, Bengal, for going through the manuscript. We also offer our sincere thanks to our colleague Dr. S. P. Rai Chaudhuri for his suggestions in the preparation of these notes.

MATERIAL AND METHODS.

For this study we dissected an equal number of male and female toads (*B. melanostictus*), totalling seventy-six specimens collected in and about Calcutta. A topographic examination of

the posterior veins in fresh condition has been resorted to in all the specimens dissected by us.

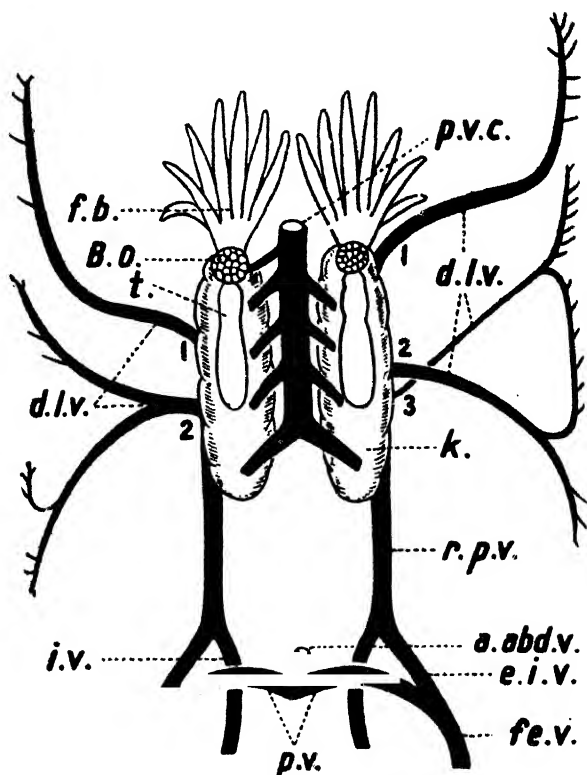
The number and disposition of the dorso-lumbar veins, not to speak of their origin and constitution, are so greatly variable that a description of the conditions in any one does not correspond to that of another. We have, therefore, given here a generalized diagram of the posterior veins of a male *B. melanostictus*, and a brief description of the course of the dorso-lumbar veins attending upon the renal-portals, which, in our opinion, will suit the purpose for which this note is prepared.

OBSERVATIONS.

1. The renal-portal vein (*V. iliaca communis*)¹ (Text-fig. 1, *r.p.v.*) on each side is constituted on the usual rapid pattern by the union of the external iliac vein (*e.i.v.*) and the ischiadic vein (or sciatic vein, according to some authors) (*i.v.*). It runs cranial as a free floating vein as far as the posterior level of the kidney (*k.*), whence it continues forward along the dorso-lateral outer edge of the kidney closely accompanying the Wolffian duct and gradually diminishing in size and finally disappearing at the cranial end of that organ. It (*V. Jacobsonii*) sends off numerous afferent renal vessels (*Vv. renales advehentes*) to the kidney. The portion of the renal-portal vein (*V. Jacobsonii*) applied to the kidney is better seen dorsally, and in this region it receives the dorso-lumbar veins (*d.l.v.*), and, in the case of females, a few well-marked branches from the oviduct. The dorso-lumbar veins originate on each side by the anastomosis of the small twigs directly arising from the muscles of the back and the lumbar region. After its formation each vessel courses in an undulating fashion, floating freely in the body-cavity, and ultimately opening into the renal-portal vein of the corresponding side. Two dorso-lumbar veins may also anastomose with each other at their points of origin (*d.l.v.*, 2 and 3, lt. side). The dorso-lumbar veins of each side open most haphazardly, one after the other, into the renal-portal, and the distance between any two vessels is subject to considerable individual variation. Their number may, however, vary from one to five on each side (*vide infra*, Table 1). In a few instances, it may be observed that two vessels instead of fusing with each other have, in fact, crossed themselves very near their separate union with the renal-portal (*d.l.v.*, 2 and 3, lt. side). It should be specially noted that the number of dorso-lumbar veins referred to in this paper is computed on the basis of the portion of the vessel which proceeds as a single trunk to connect directly with the renal-portal. This single trunk, be it noted, may be very long (*d.l.v.*, 1) or very short as in *Rana* (*d.l.v.*, 2, rt. side). In the latter case it is

¹ The nomenclature of the veins italicized within brackets is taken from Gaupp (1899).

usually formed by the union of two moderately long anterior and posterior branches (*d.l.v.*, 2, rt. side). Again, the calibre of the



Text-figure 1. Diagrammatic representation of the posterior veins of a male *Bufo melanostictus* (ventral view).

a.abd.v.—anterior abdominal vein; *B.o.*—Bidder's organ; *d.l.v.*—dorso-lumbar veins (right and left); *e.i.v.*—external iliac vein; *f.b.*—fat body; *fe.v.*—femoral vein; *k.*—kidney; *i.v.*—ischiadic vein (sciatic vein); *p.v.*—pelvic vein; *p.v.c.*—posterior vena cava; *r.p.v.*—renal-portal vein (common iliac vein and Jacobson's vein); *t.*—testis.

different vessels constituting the dorso-lumbar also varies very considerably, some appearing as stout as the renal-portal itself and some, insignificantly slender. It is interesting to note also that the dorso-lumbar of two sides do not often correspond with one another in number (*vide infra* Table 1), position and disposition, although in some cases there may be an apparent similarity in their appearance. Curiously enough, in one instance we observed a supernumerary dorso-lumbar vein falling

into the free floating portion of the renal-portal vein (*V. iliaca communis*) behind the kidney. Attention may be drawn here that Al-Hussaini (1939) has also noted one or two such vessels occurring in some of the toads he has studied. Thus the dorso-lumbar veins provide examples of variations in their origin and constitution in relation to parts concerned, in size and direction as well as in position and number when finally joining the renal-portals.

2. With a view to showing the numerical variation of the dorso-lumbar veins, without taking other concomitant variations into consideration, we have prepared the following table. We could distinguish nine types of variations (I-IX) in all, out of 76 specimens dissected. Had we dissected more specimens of toads, we might have probably encountered other types of numerical variation as, for instance, a combination of 3 vessels on the right side with 4 on the left, or 4 on the right with 2 on the left, and so on. Of course, the number of specimens showing such supposed combinations would have been very small. Further, we have included in the table two more columns in order to check whether this variability has any bearing upon the sexes.

TABLE 1. Showing statistical analysis of the dorso-lumbar veins in both sexes of *Bufo melanostictus*.

Serial no.	No. of dorso-lumbar vein.		Male.	Female.	Both sexes.
	Rt. side.	Lt. side.			
I	1	1	1	×	1
II	1	2	×	1	1
III	2	2	14	12	26
IV	2	3	10	11	21
V	3	2	4	4	8
VI	3	3	4	6	10
VII	4	3	2	×	2
VIII	2	4	2	4	6
IX	3	5	1	×	1
Total no. of dissected specimens . .			38	38	76

From the above table it will be noticed that among the combinations of equal number of dorso-lumbar veins on both sides (I, III and VI), the combination of a pair on either side (III) is decidedly greater than those of the other two, viz., one (I) and three (VI), of which the latter is by far greater than the former. The combination of two vessels on the right with three on the left (IV) is indeed greater than the opposite combination (V). The occurrences of other combinations (III and VII-IX) appear to be less frequent. The two combinations, 2 : 2 and 2 : 3 (III-IV), are no doubt the most common, but to these may also be added the other two combinations, 3 : 2 and 3 : 3 (V-VI) as occurring in fair numbers. Thus we accept a range of two to three vessels comprising a grouping of 4 combinations (III-VI) as the most commonly occurring number of dorso-lumbar veins in *B. melanostictus*. From this point of view it will be found that there are 65 such cases (32 males and 33 females) out of a total of 76 specimens dissected. The range of variation on the right side is 1-4 and on the left, 1-5.

Now, if we accept the range of variation 2-4 given by Al-Hussaini (1939) as the most commonly occurring number for the Egyptian toads *B. regularis* and *B. viridis*, it would appear to be a bit unusual when compared with that of the common Indian toad *B. melanostictus*. The range, 2 or more dorso-lumbar veins, given by Starks and Howard (1929) for the American toad *B. americanus*, calls for further clarification.

The figures under the columns 'Male' and 'Female' of the above table will amply justify the conclusion that there is no correlation between the sex and the numerical variation in the dorso-lumbar veins, since they occur in almost equal proportion in both sexes under each type of variation.

DISCUSSION.

It will not be out of place here to review briefly the distribution of the dorso-lumbar veins in other species of Salientia, since a comparison especially between *Rana* and *Bufo* is both interesting and profitable. References to many textbooks dealing with the anatomy of frogs¹ (different species of *Rana*) will make it at once evident that whatever may be the origin and formation of the dorso-lumbar veins, it is only a single trunk that remains in coalescence with the renal-portal (*V. Jacobsonii*) on each side. But, unfortunately, this is not so in reality. For, in Gaupp's (1899, p. 420) standard work on the anatomy of *Rana esculenta* we find the following statement: 'Sehr häufig, ja vielleicht immer, münden ein oder einige der Zuflüsse der *V. dorso-lumbalis* selbständig in die *V. Jacobsonii* ein.' A more

¹ Being too well-known, they are not mentioned in the reference list.

or less similar corroborative statement will also be found in Haslam's (1889, p. 248) translation of Ecker's *Anatomie des Frosches*. It may only be noted in passing that the range of numerical variation is not definitely stated either by Gaupp or Haslam. However, the interest of these variations lies in their relation to the mode of origin of the dorso-lumbars as revealed in the development of the renal-portal system, and this has been elaborately treated by Gaupp (*op. cit.*, pp. 421-423). A brief account of the developmental history, pertinent to our point at issue, may be introduced here in order to throw light on the condition that obtains in the adult frog. Gaupp (*op. cit.*, p. 422) states: '... Die als *Vv. advehentes* bezeichneten lateralen Abschnitte der Wirbelvenen verbinden sich unter einander am lateralen Nierenrande durch eine Längsanastomose: Jacobson'sche Vene, die sich auch mit der *V. iliaca* in Verbindung setzt. Dadurch werden auch diese lateralen Abschnitte der Wirbelvenen wieder in zwei Hälften zerlegt: in je eine mediale (*V. advehens* im engeren Sinne) und eine laterale, die frei an den lateralen Nierenrand herantritt. Von den letzteren gehen später eine Anzahl zu Grunde, so dass beim erwachsenen Thiere nur eine (*V. dorso-lumbalis*), hin und wieder auch noch eine zweite oder mehr übrig bleiben. Ursprünglich sind also *Vv. dorso-lumbales* (hintere Wirbelvenen) in grösserer Anzahl vorhanden gewesen.' From the foregoing account it is clear that the evolutionary tendency in these embryonic vessels ('hintere Wirbelvenen') is to concentrate them on each side into one or a small number of vessels which may be described as the dorso-lumbars. This is well depicted in *Rana* in its transformation into the adult condition. Usually there is a reduction to one dorso-lumbar on each side, and this may probably be held as the most commonly occurring number in *Rana*. Occurrence of more dorso-lumbars than one in *Rana* should, therefore, be viewed as a clear indication of the persistence of embryonic condition.

Bhaduri (1938), in recording an abnormal renal-portal in the American bull-frog *R. catesbeiana*, has shown two dorso-lumbars on either side. It is not known whether this is a constant feature or not in that species. As a result of studies of a large number of specimens of the Indian bull-frog *R. tigrina*, Mathur and Sharma (1938) recorded only three cases having two dorso-lumbars instead of one. They point out that whenever this abnormality occurs, it is found on one side only, and that it has no bearing on the sex and the size of the animals. Briefly commenting upon a few cases only, O'Donoghue (1931) seems to have paid no particular attention to the numerical variability of the dorso-lumbars, although he has recorded and compiled a large number of abnormal renal-portals in the frogs.

Marriner (1905), in describing the venous system of the Australian tree-frog *Hyla aurea* has described a single dorso-lumbar vein (erroneously designed by him as 'lumbar vein')

on either side, and noted its variation in size only. In addition to this vein he calls attention to the fact that the renal-portal vein also receives another vein—'ilec-lumbar' (*sic*) draining blood from the dorsal body-wall. An examination of the figure (Pl. XLV, fig. 2) reveals, however, that this vessel joins the external iliac vein. It may be pointed out in passing that Gaupp's (1899, p. 419) *R. iliolumbalis* is the anterior branch of the dorso-lumbar vein, whereas the veins which join the external iliac vein are, according to him (*op. cit.*, p. 493), *V. cutanea femoris anterior lateralis* and *V. abdominalis lateralis postrema*. However, we may conclude that there is usually one dorso-lumbar trunk on either side in *H. aurea*.

The occurrence of more dorso-lumbars than one has been recorded in *Xenopus* by Gilchrist and von Bonde (1922) and Grobbelaar (1924 *a* and *b*). Gilchrist and von Bonde, in dealing with a comparative anatomy of *Xenopus* and *Rana*, have shown in figures only (p. 70, fig. 20) that there are three dorso-lumbars in the former as against one in the latter, without noting this fact in the text. Grobbelaar has confirmed the above observation in a figure (1924 *a*, p. 395, fig. 2) as also in the text (1924 *b*, p. 163), naming the three dorso-lumbars,—anterior, median and posterior. It is not clear whether these veins show any numerical variation as in *Rana* or *Bufo*. But from Grobbelaar's exposition it may be held that a combination of three dorso-lumbars on either side is normally constituted, and therefore a constant feature in *Xenopus*, and in this respect it can be regarded as being less specialized than any of the genera (*Rana*, *Hyla* and *Bufo*) mentioned above.

The fact that the dorso-lumbar veins vary markedly in different individuals of *Bufo* would indicate that their value is slight, and that the utility of circulation is not greatly affected either by reduction or by retention of several embryonic vessels. Their retention (which would mean an embryonic condition) and reduction (which would indicate specialization) both can be readily explained in the light of the ontogeny as given by Gaupp (1899).

The most interesting point that emerges from the above discussion is that there is a tendency of reduction of the several embryonic vessels ('hintere Wirbelvenen') to one dorso-lumbar trunk as in *Rana* and *Hyla*, and to three as in *Xenopus*, while in *Bufo* (particularly in *B. melanostictus*) we find by statistical analysis that the persisting vessels are somewhat unstable, and they vary from two to three vessels. This may indicate that *Rana* and *Hyla* are more specialized than *Xenopus* and *Bufo*, at least in this feature. But, whatever may be our interpretation of the nature of specialization of the dorso-lumbar veins, alone it does not seem to afford at present sufficient evidence for attaching any phylogenetic value to this feature. We think that the phenomenon can be discussed more intelligently only after an adequate

study of the dorso-lumbar veins of the outstanding genera and species of Salientia.

SUMMARY.

(1) Though the dorso-lumbar veins of *Bufo melanostictus* exhibit great variability in their number, the range, two to three vessels, is the most commonly occurring feature.

(2) A comparison of the dorso-lumbar veins of the described examples, belonging to the genera *Rana*, *Hyla* and *Xenopus*, with those of *Bufo* is made to indicate the lines of their apparent specialization.

(3) Evidence of the origin of numerical variability of the dorso-lumbar veins can be adduced from Gaupp's account of the development of the renal-portal system.

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**Report on a Collection of Molluscs from Santal Parganas,
Bihar.¹**

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(Communicated by Dr. Baini Prashad.)

INTRODUCTION.

In the year 1938, Drs. H. S. Rao and H. A. Hafiz, Assistant Superintendents, Zoological Survey of India, Indian Museum, Calcutta, carried out a detailed survey of the fauna of the District of Santal Parganas, Bihar. Their collections are from Godda, Dumka, Pakaur, Deoghar and Rajmahal Subdivisions. The mollusca collection of both land and freshwater contains representatives of the families Achatinidae, Cyclophoridae, Zonitidae, Amnicolidae, Corbiculidae, Lymnaeidae, Melaniidae, Pilidae, Planorbidae, Viviparidae and Unionidae.

Seventeen genera and twenty-seven species are represented in the collection. The most interesting find is that of a young shell of land snail from the scrub jungle on the slope of Phuljori hills, about 20 miles from Dumka in Deoghar Subdivision. It is the type of the 'large depressed variety' of *Ariophanta (Ariophanta) interrupta* (Benson) recorded by Blanford and Godwin-Austen from Parashuath.

In the systematic grouping of the species and varieties I have followed Kennard and Woodward² and Pilsbry and Bequaert.³

The examination of specimens has brought out certain interesting facts connected with the geographical distribution of a few species and varieties hitherto unknown from the area.

To Dr. Baini Prashad, Director, Zoological Survey of India, I have to offer my grateful thanks for kindly granting me permission to work out this interesting collection and also for his unfailing help and suggestions.

¹ Published by permission of the Director, Zoological Survey of India.

² Kennard, A. S. and Woodward, B. B.—*Synonymy of the British Non-Marine Mollusca*, pp. xi-xxiv (1926).

³ Pilsbry, H. A. and Bequaert, J.—*Bull. Amer. Mus. Nat. Hist.*, XL, Art. I, p. 30 (1919); LIII, Art. II, pp. 69-602 (1927).

Order: PULMONATA.

Family: LYMNÆIDAE.

Genus: *Lymnaea* Lamarck, 1799.

Subgenus: *Pseudosuccinea* Baker, 1908.

Lymnaea acuminata f. *typica* Lamarck.

1925. *Limnaea acuminata* f. *typica*, Annandale and Rao, *Rec. Ind. Mus.*, XXVII, pp. 180, 181, figs. III and VI.
 1937. *Lymnaea acuminata* f. *typica*, Prashad, *Rec. Ind. Mus.*, XXXIX, p. 278.

Two spirit specimens of this form were collected from: water round Bhanji—1 specimen (24-ii-38); a large jheel near Taljhari—1 specimen (19-ii-38).

This form has previously been recorded from the United Provinces, Central Provinces, Bengal, Bihar and Assam.

Lymnaea luteola f. *typica* Lamarck.

1841. *Limnaea luteola*, Delessert, *Rec. Coq. de Lamarck*, pl. xxx, figs. 5A and 5B.
 1925. *Limnaea luteola* f. *typica*, Annandale and Rao, *Rec. Ind. Mus.*, XXVII, p. 184, fig. IV.

This form is represented by only one spirit specimen. It has a large and fairly thick shell in which the spire is broad and short and the suture more oblique.

This form is much more widely distributed in the Indian Empire than the typical *L. acuminata*. The specimen in the present collection was collected from a weedy pool on way to Gajeshwar near Burhait in Rajmahal Subdivision on 27-ii-38.

Lymnaea luteola f. *australis* Annandale and Rao.

1925. *Limnaea luteola* f. *australis*, Annandale and Rao, *Rec. Ind. Mus.*, XXVII, pp. 184, 185, fig. IV.
 1929. *Limnaea luteola* f. *australis*, Rao, *Rec. Ind. Mus.*, XXXI, p. 295.

This form is represented in the collection by a series of specimens. The spire of the shell appears to be much narrower and more elongate and the suture more impressed and sinuous than in the forma *typica*.

Specimens were collected from: a large jheel near Taljhari—8 specimens (19-ii-38); a weedy pool on way to Gajeshwar near Burhait—19 specimens (27-ii-38); a spring locally known as Kusma jharna—2 specimens (1-iii-38); small pools of water in sand of dry bed of Sunderpahari stream—many specimens (6-iii-38); Horinduba jharna—3 specimens (27-x-38); a stream near Mosanjor Dak Bungalow—1 specimen (2-xii-38).

Lymanaea luteola f. *ovalis* Gray.

1820. *Limnaea ovalis*, Gray, in *Sowerby's Gen. of Shells*, Pt. VII, *Limnaea*, fig. 4.
 1925. *Limnaea luteola* f. *ovalis*, Annandale and Rao, *Rec. Ind. Mus.*, XXVII, p. 184, figs. IV and VI.
 1937. *Limnaea luteola* f. *ovalis*, Prashad, *Rec. Ind. Mus.*, XXXIX, p. 278.

The seven specimens in the present collection agree closely with the descriptions given by Annandale and Rao in having the body-whorls much inflated, spire short but acuminate and the outer lip curved.

Specimens of this form were collected from: a stream originating from a spring near Boarjore—5 specimens (24-ii-38); a weedy pool on way to Gajeshwar near Burhait—1 specimen (27-ii-38); a pond near Pakaur Dak Bungalow—1 specimen (27-x-38).

Family: PLANORBIDAE.

Genus: *Gyraulus* Charpentier, 1837.

Gyraulus convexiusculus (Hutton).

1849. *Planorbis convexiusculus*, Hutton, *Journ. As. Soc. Bengal*, XVIII, Pt. II, p. 657.
 1919. *Gyraulus convexiusculus*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, pp. 52-54, figs. 7B, 8B.
 1934. *Gyraulus convexiusculus*, Rensch, *Archiv f. Hydrobiol. Suppl.*, XIII, pp. 209-211.
 1939. *Anisus (Gyraulus) convexiusculus*, Bequaert and Clench, *Phil. Journ. Sci.*, LXIX, p. 12, figs. 4-6.

Gyraulus convexiusculus is the commonest of all the Indian species of the genus. The shells of this species vary greatly in the contour of the body-whorl, which may be completely rounded off or more or less carinate, and in the shape of the aperture.

Annandale and Prashad sum up the geographical distribution of the species as extending from 'Lower Mesopotamia through Eastern Persia, Afghanistan and Northern India to Burma, French Indo-China, China, Japan and the Malay Peninsula'.

Specimens were collected from: a large jheel near Taljhari—many specimens (19-ii-38); rivers between Bario and Bhanji—1 specimen (24-ii-38); a stream originating from a spring near Boarjore—3 specimens (24-ii-38); pools below Motijharna falls near Maharajpur Railway Station—12 specimens (20-iii-38); a rocky hill stream near Amrapara—1 specimen (14-xi-38); a stream near Mosanjor Dak Bungalow—1 specimen (2-xii-38).

Genus: *Indoplanorbis* Annandale and Prashad, 1921.

***Indoplanorbis exustus* (Deshayes).**

1834. *Planorbis exustus*, Deshayes, *Voy. Belang. Ind. Orient. Zool.*, p. 417, pl. i, figs. 11-13.
 1921. *Planorbis (Planorbis) exustus*, Germain, *Rec. Ind. Mus.*, XXI, p. 26, pl. i, figs. 4-9, pl. iv, figs. 11, 17, 18.
 1921. *Indoplanorbis exustus*, Annandale and Prashad, *Rec. Ind. Mus.*, XXII, pp. 580-582.

This is the commonest of the large Planorbids of the Indian waters. It is widely distributed in the plains of India and Burma and has also been recorded from Siam, Malay Peninsula, French Indo-China and Sumatra.

Specimens of this species were collected from: water round Bhanji—3 specimens (24-ii-38); a stream originating from a spring near Boarijore—2 specimens (24-ii-38); a pond near Pakaur Dak Bungalow—4 specimens (24-x-38); Horinduba jharna—4 specimens (27-x-38); a pond in Majurkola village near Kotalpukur Railway Station—2 specimens (29-x-38); a rocky hill stream near Amrapara—1 specimen (14-xi-38); a tributary of River Triban near Rajapokhar—1 specimen (28-xi-38).

Family: ACHATINIDAE.

Genus: *Achatina* Lamarck, 1799.

Subgenus: *Achatina* Swainson, 1840.

***Achatina fulica* (Férussac).**

1821. *Helix (Cochlitoma) fulica*, Férussac, *Tabl. Syst. Anim. Moll.*, p. 53; *Hist. Nat. Moll.*, pl. cxxiva, fig. 1, pl. cxxv, figs. 3-5.
 1880. *Achatina fulica*, Möbius, *Reise nach Mauritius Moll.*, pp. 197, 198.
 1914. *Achatina fulica*, Gude, *Faun. Brit. Ind. Land Moll.*, II, p. 340.
 1939. *Achatina fulica*, Adam et Leloup, *Mem. Mus. Roy. Hist. Nat. Belg.*, II, Fasc. 20, p. 16.

The most important conchological feature which distinguishes this species from *panthera* and its allies is the whitish columellar region.

Achatina fulica is a gigantic land snail, and only species of the genus *Achatina* found in India. It is an East African species but has been introduced into Mauritius, Seychelles, Bourbon, British India, Ceylon, Malaya, China, North Borneo, Sumatra and Java through human agency.

The introduction of this animal into India from its original home, Madagascar, dates back to 1847, when Benson brought some living snails from Mauritius to Calcutta where they became naturalized.

It is interesting to record the occurrence of the species in the Santal Parganas, Bihar, where it has certainly migrated from the neighbouring districts of Bengal.

Two specimens of this species were collected from the rocky and sandy bed of the River Triban on 13th and 19th Nov., 1938, respectively.

Family: ZONITIDAE.

Genus: *Macrochlamys* Benson, 1832.

Subgenus: *Macrochlamys* S. S.

Macrochlamys pedina (Benson).

1865. *Helix pedina*, Benson, *Ann. & Mag. Nat. Hist.* (3), XV, pp. 13, 14.
 1897. *Nanina pedina*, Poile, *Journ. Bomb. Nat. Hist. Soc.*, XI, p. 133.
 1900. *Nanina* (*Xesta*) *pedina*, Kobelt, in *Martini and Chemnitz's Syst. Conch.*—*Cab.*, I, Abth. 12, Pt. V, p. 980, pl. ccliv, figs. 4, 5; p. 1021, pl. cclxiii, fig. 2.
 1908. *Macrochlamys pedina*, Blanford and Godwin-Austen, *Faun. Brit. Ind. Moll.*, pp. 132, 133, figs. 50, 51.

There is only one dry bleached shell in the collection which agrees with the description of the species by Blanford and Godwin-Austen.

Macrochlamys pedina is a common garden snail of Bombay. It has also been recorded from Ahmednugger, Kachh and South Canara, Bengal, Mirzapur and Philippine Islands.

The single shell in the collection was found at Sakrigali Ghat in Rajmahal Subdivision on 21-iii-38.

Macrochlamys petrosa (Hutton).

1834. *Helix petrosa*, Hutton, *Journ. As. Soc. Bengal*, III, p. 83.
 1883. *Macrochlamys petrosa*, Godwin-Austen, *Moll. Ind.*, I, Pt. IV, p. 99, pl. xix, fig. 1-1a (animal); pl. xxi, fig. 2 (sculpture); pl. xxii, fig. 1 (shell).
 1908. *Macrochlamys petrosa*, Blanford and Godwin-Austen, *Faun. Brit. Ind. Moll.*, pp. 96, 97.
 1929. *Macrochlamys petrosa*, Thiele, *Handb. der Syst. Weichtierk.*, I, p. 628.

Hutton, and not Gray, first described the shell and the animal of this species under the name *Helix petrosa*. His speci-

mens were collected at Tara, in the low range of the rocky hills near Mirzapur, in the month of August, 1832.

Blanford and Godwin-Austen give the geographical range of this species as 'The country south of the Gangetic plain from Rájmahál to Bundelkhand, especially on hills at Rájmahál, Patharghatta, near Mirzapur, etc.'

In the collection this species is represented by a single dry shell which was collected from the Gukulpur River near Kunjhona Dak Bungalow in Pakaur Subdivision on 1-xi-38.

Genus : *Ariophanta* Desmoulins, 1833.

Subgenus : *Ariophanta* S. S.

Ariophanta interrupta (Benson).

- 1832-34. *Helix interrupta*, Benson, *Zool. Journ.*, V, p. 461.
 1883. *Ariophanta interrupta*, Godwin-Austen, *Moll. Ind.*, I, Pt. IV, p. 134, pl. xxxiv, figs. 2, 2a.
 1886. *Nanina* (*Ariophanta*) *himalayana*, Tryon, *Man. Conch.* (2), II, p. 17, pl. ii, figs. 17, 18.
 1905. *Nanina* (*Ariophanta*) *interrupta*, Kobelt, in *Martini and Chemnitz's Syst. Conch.*—*Cab.*, I, Abth. 12, Pt. IV, p. 1165, pl. ccxc, figs. 1-3.
 1908. *Ariophanta* (*Ariophanta*) *interrupta*, Blanford and Godwin-Austen, *Faun. Brit. Ind. Moll.*, p. 31.

A young shell in the collection appears to be of the type of the 'large depressed variety' of *Ariophanta* (*Ariophanta*) *interrupta* (Benson) recorded by Blanford and Godwin-Austen from Pareshnath.

I give below a detailed description of the shell: shell sinistral, thin, perforate, pellucid, much depressed, light brownish horny, whorls $4\frac{1}{2}$, regularly increasing in size, the last one descending slightly, comparatively broader than the penultimate, sharply keeled at the periphery and slightly swollen below, 1st and 2nd whorls finely obliquely striated above and ornamented with fine longitudinal granules arranged in close spiral lines, 3rd and 4th whorls plicately striated and decussated with spiral lines, ventrally radiately striated with indistinct spiral lines, spire flatly conoidal, apex obtuse, suture only slightly impressed, aperture diagonal, ovally lunate, upper lid thin, slightly arcuate and angulate at the keel of the last whorl, columellar lip short, almost vertical, expanded at the base and partly reflected over the perforation.

Measurements (in millimetres).

Height of the shell ..	..	..	10 mm.
Diameter of the shell ..	..	..	17 mm.
Length of the aperture ..	..	..	10 mm.
Breadth of the aperture ..	..	..	9.5 mm.

Blanford and Godwin-Austen sum up the geographical range of this species as 'Bengal, Bihar, Orissa, Ganjam, Golconda Hills, Vizagapatam. Common to Calcutta [and extends to Jessore]'.

The single shell in the collection was found in a scrub jungle on the slope of Phuljori hills, about 20 miles from Dumka in Deoghar Subdivision on 1-xii-38.

Family: CYCLOPHORIDÆ.

Genus: *Cyclophorus* Montfort, 1810.

Subgenus: *Litostylus* Kobelt and Möllendorff, 1897.

Cyclophorus pyrotrema Benson.

1835. *Cyclostoma involvulus*, Benson, *Zool. Journ.*, V, p. 462.

1854. *Cyclophorus pyrotrema*, Benson, *Ann. & Mag. Nat. Hist.* (2), XIV, p. 412.

1908. *Cyclophorus* (*Litostylus*) *pyrotrema*, Kobelt, in *Martini and Chemnitz's Syst. Conch.*—*Cab.*, I, Abth. 19, Pt. I, p. 665, pl. xcvii, fig. 3.

1921. *Cyclophorus* (*Litostylus*) *pyrotrema*, Gude, *Faun. Brit. Ind. Moll.*, III, pp. 54, 55.

A beautiful shell of this species in the collection consists of five whorls and has a conical spire. The whorls are slopingly convex; the suture is zig-zagged with streaks of burnt chestnut, the aperture is not regularly circular, the peristome is unspotted, and the lip of a bright vermilion-orange colour.

The single shell in the collection was collected at Sakrigali Ghat on 21-iii-38.

Family: AMNICOLIDÆ.

Subfamily: *BULIMININÆ*.

Genus: *Bulimus* Scopoli, 1777.

Subgenus: *Digoniostoma* Annandale, 1920.

Bulimus pulchellus (Benson).

1836. *Paludina pulchella*, Benson, *Journ. As. Soc. Bengal*, V, p. 746.

1921. *Digoniostoma pulchella*, Annandale, *Rec. Ind. Mus.*, XXII, p. 541.

1923. *Amnicola* (*Alocinma*) *pulchella*, Annandale and Rao, *Rec. Ind. Mus.*, XXV, p. 395.

1940. *Digoniostoma pulchella*, Laidlaw, *Bull. Raff. Mus. Singapore*, XVI, p. 133.

The large series of specimens in the collection before me do not differ in any respect from the typical shells of the species in the Indian Museum Collection.

It is common in parts of Assam and the adjoining districts of Burma and has also been recorded from Bengal, Bihar, Orissa, Madras, Bombay, Coconada in South India and the United Provinces.

The species was collected from: water round Bhanji—1 specimen (24-ii-38); a stream originating from a spring near Boarjore—5 specimens (24-ii-38); a weedy pool on way to Gajeshwar near Burhait—10 specimens (27-ii-38); a spring locally known as Kusma jharna—2 specimens (1-iii-38); a rocky hill stream near Amrapara—5 specimens (14-xi-38).

Subgenus: *Alocinma* Annandale and Prashad, 1919.

Bulimus orculus (Frauenfeld).

1862. *Bithynia orcula* (Benson MS.), Frauenfeld, *Verhandl. d. K.K. Zool.-bot. Ges. Wien*, XII, pp. 1154, 1155.
 1919. *Amnicola (Alocinma) orcula*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, p. 24.
 1923. *Amnicola (Alocinma) orcula*, Annandale and Rao, *Rec. Ind. Mus.*, XXV, p. 601.

For a detailed account of this species reference may be made to the paper by Annandale and Prashad cited above. This species is widely distributed in Bengal, Bihar, Orissa, Assam, and the United Provinces and Delhi. Its range, however, does not seem to extend in the south-easterly direction beyond Manipur.

Specimens of this species were collected from a jheel near Taljhari on 19-ii-38.

Family: PILIDAE.

Genus: *Pila* Röding, 1798.

Pila conica var. *compacta* (Reeve).

1856. *Ampullaria compacta*, Reeve, *Conch. Icon.*, X, pl. xiv, fig. 2; pl. xv, fig. 71.
 1925. *Pila conica* var. *compacta*, Prashad, *Mem. Ind. Mus.*, VIII, p. 80, pl. v, figs. 9, 10.
 1928. *Pila conica* f. *compacta*, Rao, *Rec. Ind. Mus.*, XXX, p. 425.

This form is represented by seven dry shells in which the colour is dark olive-brown; narrow spiral bands are also present in two shells.

It is found in Burma and also in the Malay Peninsula.

The shells were collected from: near the River Torai—5 specimens (23-x-38); sandy bed of the River Bhamri near Dumka Dak Bungalow—2 specimens (5-xii-38).

Pila virens (Lamarck).

1822. *Ampullaria virens*, Lamarck, *Hist. Nat. Anim. Sans Vertéb.*, VI (2), p. 179.
1925. *Ampullaria virens*, Alderson, *Studies in Ampullaria*, pp. 72-74, pl. xv, figs. 3, 4; pl. xvi, fig. 1.
1925. *Pila virens*, Prashad, *Mem. Ind. Mus.*, VIII, pp. 75, 76, pl. xiv, figs. 1-3.

Of the five young specimens of this species in the collection three have a smooth shell slightly tinted with yellow, while the other two are dark-brown and banded externally with narrow brownish spiral lines and vertically striped. There is also a conspicuous longitudinal chocolate-brown mark in the columellar region.

Regarding the distribution of the species, Prashad writes, 'This species has a very wide range in Peninsular India and extends through Orissa and Bengal to Assam. In the south I have seen specimens from below Pondicherry and it probably extends further south'.

Specimens in the collection were collected from: Barhabad nullah near Pachathol village—1 specimen (27-x-38); a nullah near Kotalpukur Railway Station—2 specimens (29-x-38); a rocky hill stream near Amrapara—2 specimens (14-xi-38).

Family: MELANIIDAE.

Genus: *Melanoides* Olivier, 1807.

Subgenus: *Melanoides* S. S.

Melanoides tuberculatus (Müller).

1774. *Nerita tuberculata*, Müller, *Verm. Terr. Fluv. Hist.*, II, p. 191.
1919. *Melanoides (Plotia) tuberculata*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, pp. 31, 32, pl. iv, fig. 1.
1925. *Melanoides tuberculatus*, Annandale and Rao, *Rec. Ind. Mus.*, XXVII, p. 118.

The shells of this species vary greatly in shape, size and sculpture.

This is one of the commonest of the non-marine Gastropod Molluscs and its wide range, as pointed out by Annandale and Prashad, extends from the Mediterranean to Australia and China.

Seventeen specimens of this species were collected from: a pool of water near Taljhari Dak Bungalow—6 specimens (19-ii-38); small pools in sand of dry bed of Sunderpahari stream—7 specimens (6-iii-38); Guhundra nullah near Litipara—2 specimens (3-xi-38); a river near Litipara Dak Bungalow—2 specimens (8-xii-38).

Melanoides flavidus (Nevill) Annandale and Prashad.

1884. *Melania* (*Striatella*) *tuberculata* var. *flavida*, Nevill, *Hand List Moll. Ind. Mus.*, II, p. 244.
1919. *Melanoides pyramis* var. *flavida*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, pp. 29, 30, 34-36, figs. 3, 4; pl. iii, fig. 6; pl. iv, fig. 6.
1923. *Melanoides flavidus*, Annandale and Rao, *Rec. Ind. Mus.*, XXV, pp. 395, 396.

I follow Annandale and Rao in considering this form as a distinct species rather than a variety or subvariety of *M. tuberculatus* or *M. pyramis*.

Melanoides flavidus is represented in the collection by a series of specimens which exhibit the distinctive characters of the species; these are: the more expanded aperture, the absence of longitudinal ribs on the surface, the presence of an indistinct smooth ridge running below the suture and the presence of a distinct notch at the lower margin of the operculum.

The species is widely distributed in India, Burma, South Baluchistan, Persia, Iraq and Lower Mesopotamia.

A large number of specimens of this species were collected from: muddy parts of Morel River near Bario—18 specimens (24-iii-38); rivers between Bario and Bhanji—1 specimen (24-ii-38); a tributary stream of the Gumani River near Kusma—9 specimens (28-ii-38); Ronbyhad stream—3 specimens (1-xi-38); a rocky hill stream at the foot of the eastern slope of Rajmahal Hills near Litipara—6 specimens (3-xi-38); Jhobbo stream—2 specimens (4-xi-38); Mondhuboun stream—9 specimens (5-xi-38).

Melanoides pyramis (Hutton).

1836. *Melania pyramis*, Hutton, *Journ. As. Soc. Bengal*, V, p. 782.
1915. *Tiara* (*Striatella*) *pyramis*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, pp. 20, 21.
1919. *Melanoides pyramis*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, pp. 28-30, 32, pl. iv, fig. 3.

The species is widely distributed in the Gangetic provinces of India and also occurs in Afghanistan and Baluchistan. Hutton limits the geographical range of the species westward to Quetta beyond which he failed to find any trace of it.

The species was collected from: muddy parts of Morel River near Bario—4 specimens (24-iii-38); a tributary stream of the Gumani River near Kusma—1 specimen (28-ii-38); a sandy bed of tributary of River Triban near Rajapokhar—1 specimen (28-xi-38); a stream near Mosanjor Dak Bungalow—2 specimens (2-xii-38).

Melanoides pyramis var. leopardina Annandale and Prashad.

1876. *Melania pyramis* and var. *adspersa*, Hanley et Theobald (nec Troschel), *Conch. Ind.*, pp. 44, 45, pl. cx, figs. 1, 2, 4.
1919. *Melanoides pyramis* var. *leopardina*, Annandale and Prashad, *Rec. Ind. Mus.*, XVIII, p. 33, pl. iv, fig. 4.

For a long time this form was confounded with the forma *typica* of the species, and it was not until 1919, that Annandale and Prashad on the basis of certain important anatomical features described it as a new variety.

According to Annandale and Prashad 'It is not uncommon, though apparently somewhat sporadic, in the Indo-Gangetic plain and Peninsular India'.

Twenty specimens of this form were collected from: muddy parts of Morel River near Bario—3 specimens (24-iii-38); a rocky hill stream at the foot of the eastern slope of Rajmahal Hills near Litipara—1 specimen (3-xi-38); a sluggish stream on way to Dumarchir from Amrapara—8 specimens (13-xi-38); River Ikri near Dumarchir—8 specimens (15-xi-38).

Subgenus: *Plotia* Röding, 1798.

Melanoides scabra (Müller).

1774. *Buccinum scabrum*, Müller, *Verm. Terr. Fluv. Hist.*, II, p. 136.
1934. *Melania* (*Plotia*) *scabra*, Rensch, *Archiv f. Hydrobiol. Suppl.*, XIII, pp. 234-239.
1938. *Melania* (*Plotia*) *scabra*, Adam et Leloup, *Mem. Mus. Roy. Hist. Nat. Belg.*, II, Fasc. 19, pp. 89, 90, pl. v, fig. 6.

The large series of specimens in the collection agree in all essential shell-characters with the typical shells in the Indian Museum Collection.

Melanoides scabra has a wide range of distribution in India, Burma, Ceylon, Andamans, Mauritius and Seychelles.

Localities representing the specimens in the collection are: Rivers between Bario and Bhanji—2 specimens (24-ii-38); sandy parts of the Gumani River near Kusma—6 specimens (28-ii-38); Dumra River near Simlong—1 specimen (3-iii-38); muddy parts of Morel River near Bario—1 specimen (24-iii-38); a rocky hill stream at the foot of the eastern slope of Rajmahal Hills near Litipara—2 specimens (3-xi-38); Karla River—5 specimens (4-xi-38); Mondhuboun stream—1 specimen (5-xi-38); a river near Litipara Dak Bungalow—8 specimens (8-xi-38).

Subgenus: *Tarebia* H. & A. Adams, 1859.

***Melanoides lineatus* (Gray).**

1828. *Helix lineata*, Gray, in *Wood's Index Testaceol. Suppl.*, p. 24, pl. viii, fig. 68.
 1915. *Tiara (Tarebia) lineata*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, p. 34.
 1938. *Melania (Tarebia) granifera lineata*, Adam et Leloup, *Mem. Mus. Roy. Hist. Nat. Belg.*, II, Fasc. 19, pp. 90, 91, pl. v, fig. 7.

The distribution of this species is almost the same as in *M. scabra*, and it seems always to occur in close association with the latter.

Specimens of this species were collected from: Rivers between Bario and Bhanji—3 specimens (24-ii-38); muddy parts of Morel River near Bario—4 specimens (24-iii-38); Jhobbo stream—11 specimens (4-xi-38); Karla River—2 specimens (4-xi-38); a river near Litipara Dak Bungalow—13 specimens (8-xi-38); a tributary stream of the Gumani River near Kusma—6 specimens (28-ii-38).

Genus: *Acrostoma* Brot, 1874.

***Acrostoma variabilis* (Benson).**

1836. *Melania vaiabilis*, Benson, *Journ. As. Soc. Bengal*, V, p. 746.

The great variability of the shells of this species is apparent in a number of shells before me, i.e. in some the longitudinal ribs are quite prominent, while in others these are rudimentary or entirely absent.

This species was originally recorded from the Goomty River, Jaunpur, United Provinces and was later found in Arakan, Pegu, Assam and Bengal. Its range extends to Sumatra also.

Twelve spirit specimens of this species were collected from small pools below Motijharna falls near Maharajpur Railway Station on 20-iii-38.

Family: VIVIPARIDAE.

Genus: *Viviparus* Montfort, 1810.

***Viviparus bengalensis* f. *typica* (Lamarck).**

1822. *Paludina bengalensis*, Lamarck, *Hist. Nat. Anim. Sans Verteb.*, VI (2), p. 174.
 1921. *Vivipara bengalensis* race *bengalensis*, Annandale, *Rec. Ind. Mus.*, XXII, pp. 270, 271, pl. i, figs. 1-3.

Typical shells of this form were collected from: a large jheel near Taljhari—3 specimens (19-ii-38); a tributary stream of the Gumani River near Kusma—4 specimens (28-ii-38); a spring locally known as Kusma jharna—7 specimens (1-iii-38); near the River Torai—2 specimens (23-x-38); Horinduha jharna—1 specimen (27-x-38); a rocky hill stream at the foot of the eastern slope of Rajmahal Hills near Litipara—5 specimens (3-xi-38); Mondhuboun stream—1 specimen (5-xi-38); a rocky hill stream near Amrapara—1 specimen (14-xi-38); sandy bed of the River Bhamri near Dumka Dak Bungalow—1 specimen (5-xii-38).

***Viviparus bengalensis* race *doliaris* (Gould).**

1843. *Paludina doliaris*, Gould, *Proc. Bost. Soc. Nat. Hist.*, I, p. 144.
 1869. *Paludina digona*, Blanford, *Proc. Zool. Soc. London*, p. 445.
 1907. *Vivipara doliaris* and *V. digona*, Kobelt, in *Martini and Chemnitz's Syst. Conch.—Cab.*, I, Abth. 21, Pt. II, p. 145, pl. xxix, figs. 4, 5; p. 195, pl. xxxix, figs. 8-11.
 1921. *Vivipara bengalensis* race *doliaris*, Annandale, *Rec. Ind. Mus.*, XXII, pp. 273, 274, pl. i, fig. 9.
 1929. *Viviparus bengalensis* race *doliaris*, Rao, *Rec. Ind. Mus.*, XXXI, p. 278.

This race is widely distributed in India and Burma, but appears to have its headquarters in the valley of the Irrawaddy. Rao says that the forma *typica* of the species which was at one time so dominant in Burma has been more or less totally replaced by the race *doliaris*.

A single shell of the type was taken from a stream near Mosanjor Dak Bungalow on 2-xii-38.

***Viviparus bengalensis* race *mandiensis* Kobelt.**

1909. *Vivipara bengalensis* var. *mandiensis*, Kobelt, in *Martini and Chemnitz's Syst. Conch.—Cab.*, I, Abth. 21, Pt. II, p. 414, pl. lxxvii, figs. 8-10.
 1921. *Vivipara bengalensis* race *mandiensis*, Annandale, *Rec. Ind. Mus.*, XXII, pp. 271, 272, pl. i, figs. 4 and 10.
 1922. *Vivipara bengalensis* race *mandiensis*, Prashad, *Rec. Ind. Mus.*, XXIV, p. 17.

The three specimens in the collection agree closely with the description given by Annandale. The spire is more conical and slightly narrower than in the forma *typica*, the aperture is more projecting, and the alternation of broad and narrow spiral bands is very prominent.

Specimens were collected from a stream originating from a spring near Boarijore on 24-ii-38.

***Viviparus bengalensis* phase *annandalei* (Kobelt).**

1908. *Vivipara annandalei*, Kobelt, *Nachr. Malak. Ges.*, LX, pp. 161, 162.
 1921. *Vivipara bengalensis* phase *annandalei*, Annandale, *Rec. Ind. Mus.*, XXII, p. 276, pl. ii, figs. 5-8.

The phase *annandalei*, which Kobelt considered as 'eine kritische form', was determined by Annandale in 1921. It is represented in the collection by eight specimens which are easily recognized by the thinness and translucency of the shells. The suture in this phase is very shallow.

Specimens of this phase were collected from: a pond near Pakaaur Dak Bungalow—2 specimens (24-x-38); a pond in Majurkola village—6 specimens (29-x-38).

***Viviparus bengalensis* phase *halophila* Kobelt.**

1908. *Vivipara annandalei halophila*, Kobelt, *Nachr. Malak. Ges.*, LX, p. 162.
 1921. *Vivipara bengalensis* phase *halophila*, Annandale, *Rec. Ind. Mus.*, XXII, p. 277, pl. ii, figs. 9, 10.

Three spirit specimens of this phase agree in all essential features with the description of Annandale.

The type-series was collected from the Salt Range, Punjab, and specimens were also collected from Calcutta and Burdwan in Bengal. It is interesting to record for the first time its occurrence in the District of Santal Parganas, Bihar, where it was found in the following localities: pools below Motijharna falls near Maharajpur Railway Station—1 specimen (20-iii-38); a nullah near Kotalpukur Railway Station—1 specimen (29-x-38); a pond in Majurkola village—1 specimen (29-x-38).

***Viviparus dissimilis* (Müller).**

1774. *Nerita dissimilis*, Müller, *Verm. Terr. Fluv. Hist.*, II, p. 184.
 1928. *Viviparus dissimilis*, Prashad, *Mem. Ind. Mus.*, VIII, p. 163, pl. xix, fig. 2.
 1928. *Viviparus dissimilis*, Rao, *Rec. Ind. Mus.*, XXX, p. 417.

Rao in his report remarks, 'Amongst the many species of *Viviparus* occurring in India and Burma, *V. bengalensis* appears to be extremely variable, and perhaps next in point of variability comes *V. dissimilis*'.

Prashad in discussing the distribution of this species writes, 'Though the type-species is confined to India and Burma only,

nearly related species or forms derived from it are found in China and Japan on the one hand and in the Malay Peninsula, Siam, Cambodia, Annam and the East Indies on the other'.

Three specimens of this species were collected from: a large jheel near Taljhari—2 specimens (19-ii-38); a pond near Pakaur Dak Bungalow—1 specimen (24-x-38).

Order: EULAMELLIBRANCHIATA.

Family: CORBICULIDAE.

Genus: *Corbicula* Megerle von Mühlfeldt, 1811.

Corbicula striatella Deshayes.

1854. *Corbicula striatella*, *C. bengalensis* and *C. trigona*, Deshayes, *Proc. Zool. Soc. London*, XXII, p. 344.

1928. *Corbicula striatella*, Prashad, *Mem. Ind. Mus.*, IX, pp. 18-20, pl. iii, figs. 9-11.

Corbicula striatella is by far the commonest species of the genus found in India. It was originally described by Deshayes in 1854 from the collection of Hugh Cuming, who obtained the material from Pondicherry. The range of the species, as stated by Prashad, extends 'practically all over India, from Peshawar in the north to Pondicherry and lower down south in the Madras Presidency and from Sindh in the north-west to Assam; it is also found in Burma'.

Only three specimens were collected from: a tributary stream of the Gumani River near Kusma—2 specimens (28-ii-38); muddy parts of Morel River near Bario—1 specimen (24-iii-38).

Genus: *Pisidium* Pfeiffer, 1821.

Subgenus: *Neopisidium* Odhner, 1921.

Pisidium clarkeanum G. & H. Nevill.

1871. *Pisidium clarkeanum*, Nevill, *Journ. As. Soc. Bengal*, XL, Pt. II, pp. 9, 10, pl. i, figs. 4, 4a-d.

1925. *Pisidium clarkeanum*, Prashad, *Rec. Ind. Mus.*, XXVII, pp. 408-412, figs. 1-3; pl. vii, figs. 1, 2; pl. viii, figs. 1, 2.

1937. *Pisidium clarkeanum*, Prashad, *Rec. Ind. Mus.* XXXIX, p. 280.

1940. *Pisidium clarkeanum*, Odhner, *Nova Guinea N.S.*, IV, p. 217.

P. clarkeanum has been recorded from Bengal, Bihar, United Provinces, Bombay, Maymyo, He-Ho plain and Inlé Lake, Burma. Prashad in his report of the Yale North India Expedition records its occurrence in a tank at Ootacamund, Nilgiri Hills (alt. 7,400 ft.), S. India.

The localities representing the specimens in the collection are: small pools of water in sand of dry bed of Sundarpahari stream—1 specimen (6-iii-38); a stream originating from a spring near Boarjore—12 specimens (24-iii-38).

Family: UNIONIDAE.

Genus: *Lamellidens* Simpson, 1900.

Lamellidens corrianus (Lea).

1834. *Unio corrianus*, Lea, *Trans. Amer. Phil. Soc.* (2), V, p. 65, pl. ix, fig. 25.
 1915. *Lamellidens* (*Lamellidens*) *marginalis* subsp. *corrianus*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, p. 183.
 1921. *Lamellidens corrianus*, Prashad, *Rec. Ind. Mus.*, XXII, p. 609, fig. 29.
 1922. *Lamellidens corrianus*, Prashad, *Rec. Ind. Mus.*, XXIV, pp. 106, 107, pl. ii, figs. 9-11.

Prashad after a critical study of the shell-structure and the anatomy of its soft parts remarks, 'This species is not a form of *L. marginalis*, as Preston thinks, but quite distinct, for not only are the shells different but the marsupium also is formed quite differently in the two species'.

In the present collection the species is represented by only one spirit specimen which, though young, agrees in all its essential particulars with the description given by Prashad.

This is an extremely variable species and, like *L. marginalis*, has a wide distribution in India and Burma.

The single specimen was collected from a dirty pond near Katikund Dak Bungalow in Dumka Subdivision on 25-xi-38.

Genus: *Indonaia* Prashad, 1918.

Indonaia caerulea (Lea).

1834. *Unio caeruleus*, Lea, *Trans. Amer. Phil. Soc.*, IV, p. 95, pl. xiii, fig. 25.
 1914. *Nodularia caerulea*, Simpson, *A Descr. Cat. Naiades*, 1, p. 978.
 1922. *Indonaia caerulea*, Prashad, *Rec. Ind. Mus.*, XXIV, p. 94.
 1928. *Indonaia caerulea*, Rao, *Rec. Ind. Mus.*, XXX, p. 463.

This species was originally described by Lea, in 1834, from a collection made by Mr. G. W. Blakie from the river Hooghly, Calcutta. Simpson later published a detailed description of this species.

It is extremely variable and is the commonest species of the genus *Indonaia* widely distributed throughout India and Burma.

Specimens in the collection were collected from: a tributary stream of the Gumani River near Kusma—8 specimens (28-ii-38); muddy parts of Morel River near Bario—8 specimens (28-iii-38); River Ikri near Dumarchir—2 specimens (11-xi-38); Jhobbo stream—1 specimen (14-xi-38).

Indonaia caerulea var. **gaudichaudi** (Eydoux).

1838. *Unio gaudichaudi*, Eydoux, *Mag. de Zool. Cl.*, V, p. 10, pl. cxviii, fig. 3.
1914. *Nodularia gaudichaudi*, Simpson, *A Descr. Cat. Naiades*, 1, p. 982.
1915. *Nodularia* (*Nodularia*) *caeruleus* var. *gaudichaudi*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, p. 137.
1918. *Indonaia caerulea* var. *gaudichaudi*, Prashad, *Rec. Ind. Mus.*, XV, pp. 147, 148, figs. 2, 3.
1921. *Indonaia caerulea* var. *gaudichaudi*, Prashad, *Rec. Ind. Mus.*, XXII, p. 603.

Simpson described the conchological features of this variety, while Prashad dealt with its soft parts.

So far as is known, this variety appears to be confined to Bengal and Bihar.

The single specimen in the collection was found in a tributary stream of the Gumani River near Kusma on 28-ii-38.

Genus: **Potomida** Swainson, 1840.

1840. *Potomida*, Swainson, *A Treatise on Malacology*, p. 268.
1853. *Parreysia*, Conrad, *Proc. Acad. Nat. Sc. Phil.*, VI, p. 267.
1936. *Potomida*, Prashad, *Proc. Malac. Soc. London*, XXII, Pt. III, pp. 120, 121.

Prashad in his recent paper discussed in detail the nomenclature of this genus and concluded, 'Swainson's designated *corrugata* as the type of his new genus *Potomida*, which name must, therefore, replace *Parreysia* Conrad'.

This genus is spread throughout India, Burma, Indo-China and China.

Subgenus: **Potomida** S. S.

Potomida favidens var. **chrysis** (Benson).

1862. *Unio favidens* var. *chrysis*, Benson, *Ann. & Mag. Nat. Hist.* (3), X, p. 189.
1876. *Unio favidens* var. *chrysis*, Hanley et Theobald, *Conch. Ind.*, p. 19, pl. xli, fig. 3.
1915. *Parreysia* (*Parreysia*) *favidens* var. *chrysis*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, p. 160.

This variety was originally described by Benson, in 1862, from the river Dojora at Kareily Ghat, near Bareilly, United Provinces, and was later recorded by Preston from Patna in Bihar.

The series of specimens in the collection were collected from: muddy parts of Morel River near Bario—19 specimens (24-ii-38); sandy parts of Gumani River near Kusma—3 specimens (28-ii-38); River Torai near Pakaur Dak Bungalow—2 specimens (23-x-38); River Ikri near Dumarchir—1 specimen (15-xi-38).

Potomida corrugata (Müller).

1774. *Mya corrugata*, Müller, *Verm. Terr. Fluv. Hist.*, II, p. 214.
1914. *Parreysia corrugata*, Simpson, *A Descr. Cat. Naiades*, I, pp. 1105-1107.
1918. *Parreyssia corrugata*, Prashad, *Rec. Ind. Mus.*, XV, pp. 145, 146, fig. 1f.
1936. *Potomida corrugata*, Prashad, *Proc. Malac. Soc. London*, XXII, Pt. III, pp. 120, 121.

Simpson supplements Müller's description of *P. corrugata* which is very meagre. In regard to the variability of the shells of this form he remarks, 'The shells of this group are very variable and, it seems to me, have received far too many names at the hands of the conchologists'.

A small dry shell of the species in the collection is inequilateral—a character very scarcely found in this species. The colour of the shell is grass-green, its surface zig-zagged, beaks small but prominent, and its anterior side very short and completely rounded, while the posterior side narrow and bluntly truncated.

The species is distributed throughout India, Burma and Ceylon.

The single shell was found in a pond near Pakaur Dak Bungalow on 24-x-38.

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**Blood Groups of Tribes and Castes of the U.P. with
special reference to the Korwas.**

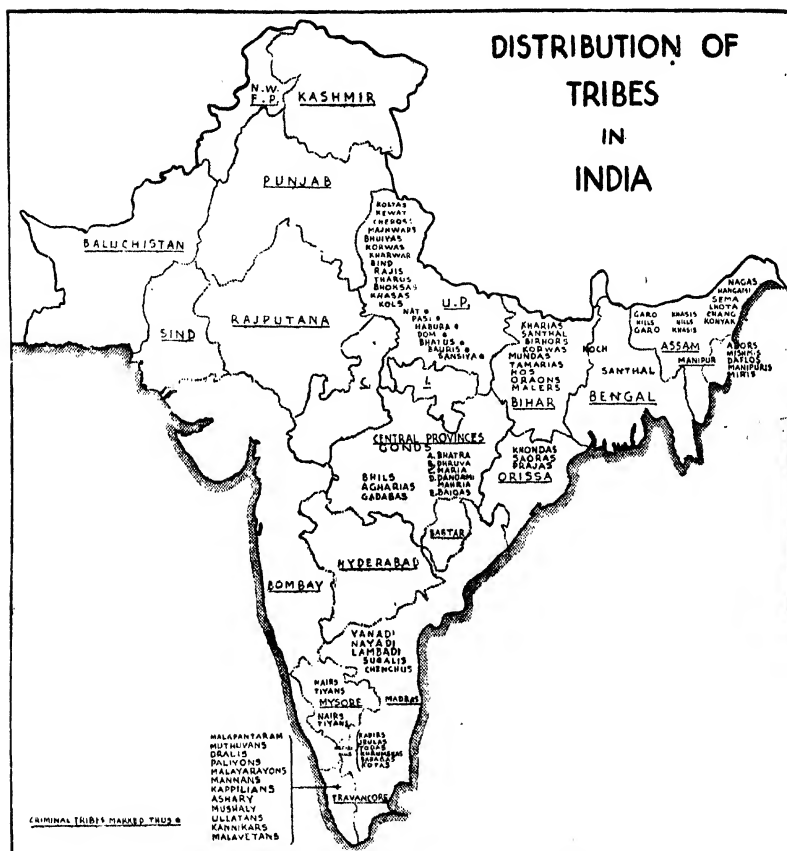
By D. N. MAJUMDAR.

In India there exist a number of tribal concentrations. In Assam, the Naga tribes inhabit compact areas. The Chotanagpur plateau is the home of the aboriginal tribes of pre-Dravidian affiliation. The Gonds are found widely scattered, but they have gravitated mostly in the Central Provinces, particularly in some of the states of the Eastern Agency. The Bhils are scattered in the Central India Agency tracts, in Gujarat and Hyderabad. Many pre-Dravidian and mixed Dravidian tribes inhabit the hilly tracts of the Madras Presidency, and the States of the South, in the Nilgiri and adjacent areas in Malabar. The main centres of tribal concentration in northern India are the Chotanagpur plateau with adjoining Indian States of Surguja, Jashpur, Rewa, and the Mirzapur district of the U.P., also Bundelkhand and Baghelkhand, and the cis-Himalayan and submontane districts in the United Provinces.

DISTRIBUTION OF THE TRIBES.

Through centuries of contacts, migration and expulsion many of the tribes have spread to various parts of the country, and today a tribe is not always a geographical or territorial unit as it originally was. The same tribe may now be found in two or more Provinces with little racial or social affiliation in some cases, the former due to crossing with the backward castes and groups in the areas they have settled, the latter due to distance and the myth of dissociation from their traditional customs and practices and their participation in alien rites and rituals. Often tribal groups have migrated to distant factories and plantations lured by prospects of high wages, freedom from social control and for the sake of adventure. 'Fresh fields and pastures new' have also tempted tribes to leave their ancestral moorings and seek shelter in distant lands. Criminal habits and 'Crime Culture' have scattered tribal groups like the Sansiyas, Bauris, Bhatus and Karwals all over India and the same tribe has assumed different names to escape the vigilance of the police even as individuals have adopted new names, fictitious titles or ascetic garbs to escape detection. Tribal rites and rituals, traditional customs and ways of living, have been superseded by caste prescriptions or by conversion to more dynamic faiths and while a section of a tribe still clings to tribal

life and settlements, another section has adopted a caste name, abandoned its tribal language and functional independence, and have claimed caste status and has been recognized as such.



Many tribes, on the other hand, have refused contacts and have literally withdrawn themselves into their shells, as it were, with consequent distress and discomforts. They still afford field for anthropological research, though their exit is a matter of decades, if not years.

The exterior or scheduled castes who today have become pretty loud and vocal, who are being made politically conscious for their own interest or for that of others, have been mostly recruited from the tribal substratum, which fact has provided Ibbetson material for his highly interesting hypothesis of caste origins. In the Mirzapur district (U.P.), for example, a

number of primitive or quasi-aboriginal tribes have been included in the scheduled list as their social position is analogous to that of other depressed communities. The wandering tribes have spread far and wide, their ostensible means of livelihood, that of dancing, acrobatic feats and their skill in manufacture, more particularly in disposal of indigenous nostrums for the restoration of vigour and lost manhood, bring them in close contacts with rural and urban people and much of the dilution of blood of the latter is probably due to such contacts.

A glance at the tribal map of the United Provinces will show how the various tribal groups have distributed themselves. The main stream of tribal immigration is noticed in the Mirzapur district which geographically forms an adjunct to the table land of Chotanagpur and is surrounded by areas largely inhabited by tribal people. Plains are great levellers of cultures, and those of the tribes that have settled in the plains districts have either mixed with some other social groups at low levels of culture or have assimilated traits from the latter so much so that their identity today is difficult to ascertain. All the tribes except the nomadic, vagrant or criminal ones are therefore located in inaccessible hills and forests where for long they have been left more or less untouched by civilization.

We have in the United Provinces two areas of tribal concentration, one in the Mirzapur district, the other in the sub-montane tracts like Pilibhit, Gonda, Bareilly, Bahraich and Gorakhpur, also parts of the Kheri district. The Mirzapur tribes are racially akin to those living in the Chotanagpur plateau and there is a cultural similarity maintained by them which also indicates their common origin. The hill tribes inhabiting the cis-Himalayan region, popularly known as the Khasas or Khasiyas (not Khasis who inhabit Assam) may be identified with the earlier Indo Aryan tribes, those that moved into the hills and found 'secure asylum', where they have continued their peaceful cultural life for long undisturbed by events that so much complicated Indian history, ancient and medieval. The Tharus and Bhoksas, those that inhabit the submontane districts, have probably entered the Provinces from the north-east and are of mongoloid extraction as appears from their physical features though considerable intermixture has taken place among them in certain parts.

Besides these two tribal pockets—one in the north-east, the other in the south-east of the Province—large number of wandering and criminal tribes poured into the country and although their total strength is not more than two millions they are very widely distributed and every district in the Province has received some infiltration. These tribes appear to be of heterogeneous composition. At one end they represent a fair, dolichocephalic, leptorrhine element like the Sansiyas and Bhatus, at the other end they are represented by the Doms, a

dark-skinned, short-statured, flat-nosed people who 'scourge the eastern districts of the Province'. The Sansiyas, Bhatas and cognate tribes are found in the Central Provinces as well as in Central India and it is possible that their premigration home was outside the Province. They infiltrated into the United Provinces probably through Bundelkhand and Baghelkhand and Jhansi whence they spread far and wide into Agra and Oudh.

There are thus four important tribal groups in these Provinces: (1) the Mirzapur tribes, (2) the tribes of the submontane districts, (3) the Khasas and other tribes of the cis-Himalayan region, and (4) the wandering and vagrant tribes. The last one could be sub-divided into (a) nomadic and (b) settled. Most of these wandering tribes live by crime as their hereditary profession but there are also those like the Gujars or Ahirs who ply useful trade of tending cattle and supplying milk and milk products to markets and people among whom they live.

BLOOD GROUPS OF THE TRIBAL POPULATION.

Under the auspices of the 1931 census operations an anthropological survey of the people of the United Provinces was undertaken by the author, and blood group investigations were combined with anthropometric measurements. Blood groups data from the Khasas of the cis-Himalayan region (*U.P. Historical Society's Journal*, Vol. XIII, Pt. 2, December 1940), the criminal tribes of the U.P., viz. the Karwals and Bhatas (*Science and Culture*, 1942, VII, No. 7) and the Doms (*Current Science*, 1942, No. 4), the Mongoloid Tharus of the Tarai districts (*J.R.A.S.B.*, 1942, *Science*) and some caste groups Kayasthas, Khatris and Chamars (*Science and Culture*, Vol. V, 1940) have already been published. Some of the samples so far recorded consisted of less than one hundred persons, and in order that the samples could be representative, further investigations were carried on among those groups. These and further data on the blood groups of tribes and castes of the Province are awaiting publication.

About 4,000 blood groups data have already been obtained by the author in the United Provinces alone, and if we add those that were reported by Malone and Lahiri for 'Hindus of the United Provinces (2,357)', the total number tested come to more than six thousand. The United Provinces thus lead other parts of India in blood group investigations and afford comparative material for testing the conclusions already arrived at by other investigators.

BLOOD GROUPS OF THE KORWAS.

So far I have not presented any data on the blood groups of the Mirzapur tribes who are believed racially akin to the Munda

speaking tribes of Chotanagpur and adjacent Indian States. The Korwas are the most primitive element in the population of Mirzapur. They are found south of the river Son and along the frontier of Sarguja. In the district gazetteer of Palamau they are described as a jungle tribe numbering 7,000. They are numerous in the Banka Thana which lies on the border of Sarguja and also in Untary. There does not seem to be much racial difference between the Korwas of different parts, though the Sarguja Korwas are wilder than their brethren in adjacent districts of British India.

The Korwas of Dudhi are a dying group and hold their lives on slender terms. They have failed to adapt to new economic conditions and though they have taken to agriculture in recent times it does not provide them the security that is required for their survival. A sort of crude farming is practised by them, they scratch the rocky soil by means of miniature ploughs, sow all kinds of seeds together and offer prayers to the rain god and sacrifice fowls and pigeons to propitiate him. The Korwas are surrounded by a number of other tribes against whom they maintain strict endogamy and exclusiveness, both encouraging a sort of inbreeding, impairing their vitality and reducing them to social impotence. Local conditions instead of aiding the Korwas have aggravated their miserable plight. Water is scarce even for drinking purposes, for the rivers, though many in number, do not carry water throughout the year, and well-sinking is also difficult as the average depth of water is very great and before it can be met with granite rocks have to be pierced. The dry climate and scarcity of water have caused absence of bird life in the forests of Mirzapur.

The prospect of failure of crops and scarcity of fodder constantly dangles before their eyes and the Korwas and other tribal people in the area have developed an ingenious 'famine code', as it were, to cope with their food problem. Even in average years a substantial portion of their subsistence is made up of fruits and roots from the forest. Not all of these are edible ones, some are poisonous, but necessity is the mother of invention and the tribal people have succeeded in evolving an efficient technique of curing the poisonous fruits and roots out of which they make edible stuff. The roots and fruits are hunted out from the interior of forests, they are washed and cleaned, put in the sun and dried. When completely dry, they are ground into flour and cakes are prepared out of it. Often the flour is cooked with molasses or honey and a kind of *halua* is prepared which serves as a delicacy during festivals and as occasional treat to their friends and visitors.

As a tribe faced with extinction or absorption by more vital social groups, the Korwas are afraid of contacts, and they have developed a persecution complex which prevents free mixing with their neighbours. The Cheros, another tribal

group of pre-Dravidian affiliation are the reputed Baigas or medicinemen of the locality and they are supposed to wield great influence with evil spirits and disembodied souls whom they can use to nefarious ends. They are sorcerers, diviners and also adept in 'leechcraft'. The Korwas live in constant dread of them. The Cheros cause diseases and epidemics and know also how to get rid of them; they know spells and incantations which they cite for rousing their pet spirits to activity and for their effective mediation in human ills. The effect of this monopoly of 'spirit lore' by the Cheros has been the complete dependence of the various tribal groups on the Baigas, those versed in 'demonology'. Among the Cheros where this skill has been linked with a vague fear of the evil *Mana* of this weird class of artisans, a lot of taboos on food, marriage and social intercourse have imperceptibly established themselves which have succeeded in hedging in the Korwas and a few other tribal groups from culture contacts.

Where the self-sufficiency of primitive social groups is disturbed by new economic situation, social mobility, contacts and migration are indispensable for their survival. The Korwas have lost control of their environment, the security they had worked out by a careful combination of gleaning, hunting and agriculture has been invaded by more advanced groups and they are ill adapted to the environment today. They have withdrawn themselves into their shells as it were, and by so doing they have preserved their purity of blood but also are facing disorganization in their cultural life.

How far blood groups of the Korwas would affiliate or differentiate them from the cognate tribes of Munda ethnic stock, and how far they actually have kept aloof from their tribal neighbours will be an interesting inquiry. In a crowd of seven to eight hundred tribal people, I was asked by the local officials of the Sarguja State to spot out the Korwas and in 75% of the cases I was successful. Anyone who has lived long in the Ranchi district, I am sure, can tell a Munda from an Oraon though at first sight the difference is not palpable. The Korwas are a class by themselves, in physical features they are easily distinguished from the neighbouring tribes such as the Majhwars, the Kharwars, the Bhuiyas, the Cheros and the Oraons. The latter, most of them, are shorter in stature, less robust in constitution, a shade fairer in complexion and possess finer traits than the Korwas. The Majhwars, for example, have been Hinduized, have lived with Hindu castes, particularly the Koiri and the Tili who possess finer and more regular features, and with whom they have mixed in varying proportions. Culturally the Korwas have maintained their solidarity and have tabooed contacts, marriage and social intercourse with alien groups, and even with their neighbours, and whenever they come out in public, they gravitate and move in groups.

THE NEGROID AFFILIATION OF THE KORWAS.

When I met the Korwas of Dudhi in 1931 I could not find any Negroid racial traits among them. The Korwas of Dudhi or of Palamau do not show connection with any Negroid race but two hill Korwa families of Sarguja were found to possess traits suggesting negroid affiliation. In the photograph of the Korwa families, printed along, the children show some negroid characters, particularly in the shape of the nose and in general contours.

The Korwas possess a very dark complexion. Sometimes it is soot black. They are usually tall with long forearms. They have a well-developed chest and their figure gives the idea of great power. The eyes are small and the lids swollen but no mongoloid fold or obliqueness is met among them. The nose is heavy, flat and depressed at the root. The lips are thick but not inverted. The jaws are heavy and prognathism is not uncommon. The hair is coarse, thick and very dark. It is either kept long, in which case it hangs unkempt over the shoulders, or, as the majority of the Korwas do today, the whole head is shaved with a tuft kept at the back; woolly hair is not found among them. Genuine Korwas have well-developed physique but they look famished and ill-clad.

The anthropometric data collected from Dudhi is given below: The average stature is 158.17 cm. and is higher than most of the other tribes in the locality except the Agarias who like the Asurs of Chotanagpur possess tall stature. The average cephalic index based on 109 individuals is 73.2 with a range from 67.3 to 81.6. The average cephalic index of the Mundas is 74.5, the Kharia 74.5 and the Korwas 74.4 recorded by Sir Herbert Risley. Surgeon Captain Drake-Brockman, who measured 25 Korwas of the U.P., found the average cephalic index to be 72.0 and the nasal index 75. The nasal index of the Korwas from my data was found to be 85.3 showing significant difference with that of Drake-Brockman. Different techniques may be responsible for such wide variation. My previous calculation on the basis of the data from 50 Korwas already published in (*Man in India*, Vol. IX, 1929) was, cephalic index 72.9 and nasal 83.7. A comparison of the means and standard deviations of my two samples do not reveal any significant differences. The majority of the Korwas are therefore dolichocephalic and platyrrhine.

An opportunity occurred in April 1941 to obtain blood groups of the Korwas of Dudhi, Sarguja and Palamau. In a fortnight's tour through the Korwa country posing as an itinerant medical practitioner dispensing homeopathic medicines which has stood me in good stead on so many occasions, I could collect 147 samples of blood from old people, women and children, the able-bodied adult is so difficult to secure during daytime. In the

summer holidays of 1941 I toured into the Korwa country, in the Sarguja State and collected further anthropometric data from the Korwas of the Sarguja State. In April 1942, I secured a large amount of data on the physical appearance and interrelations of the tribal groups in Dudhi, district Mirzapur. The complete analysis of the data will be presented later on in a suitable form. In this paper I would like to discuss the blood groups data from the Korwas.

TABLE 1.

Blood Groups of Korwas and Gene Frequencies.

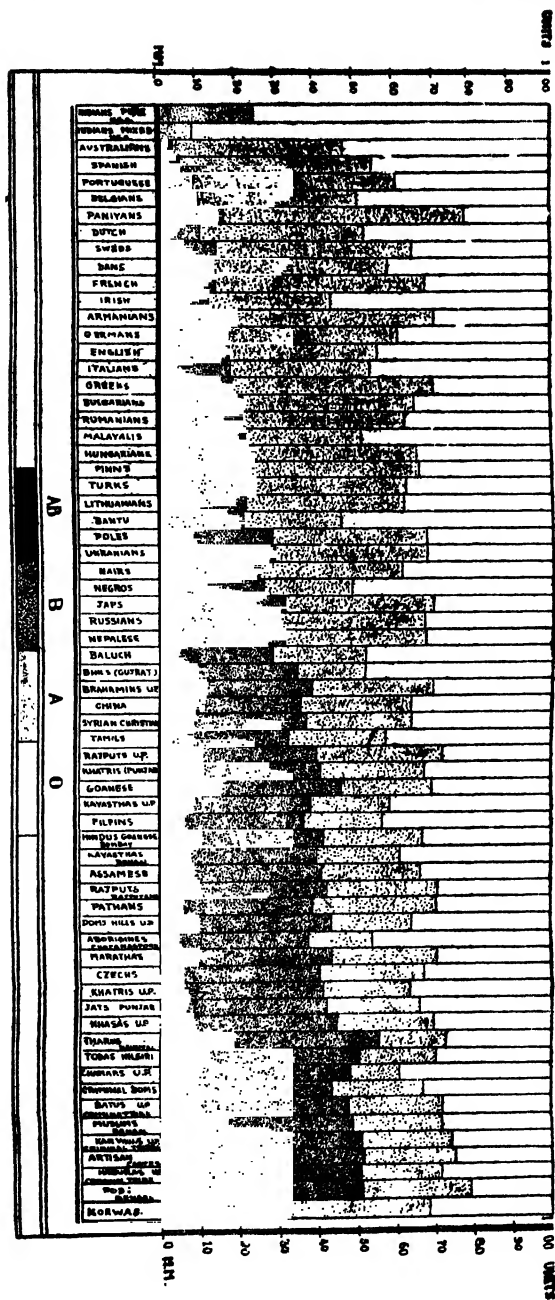
	O	A	B	AB	p	q	r
Korwas							
(Total 147) ..	31.7	35.6	20.4	12.3	.257	.159	.563
Korwas (89) ..	29.1	34.5	26.1	10.3	.258	.204	.539

Blood groups data from a number of tribes of pre-Dravidian affiliation have been published recently by Macfarlane and Sarkar. The latter took much pains to establish on the basis of blood groups data the ethnic difference between the Maler and the Oraons although the anthropometric data, definite or indefinite, do not warrant such an assumption. The following table gives the blood group percentages and gene frequencies of a number of tribes and castes of the United Provinces:—

TABLE 2.

	O	A	B	AB	p	q	r
U.P. Hindus (Malone and Lahiri) (2,357) ..	30.2	24.5	37.2	8.1	.190	.271	.549
U.P. Kayasthas (Majumdar) (110) ..	36.0	19.9	32.6	11.5	.148	.228	.600
U.P. Khatris (Majumdar) (126) ..	32.0	24.2	33.3	10.5	.185	.243	.565
U.P. Chamars (Majumdar) (151) ..	36.3	18.7	39.3	5.7	.139	.268	.602
U.P. Doms (Criminal) (Majumdar) (180) ..	32.8	22.8	39.4	4.4	.173	.278	.572
U.P. Doms (Hill) (Majumdar) (125) ..	36.0	20.0	33.8	10.2	.148	.235	.600
The Tharus (Majumdar) (241) ..	27.1	17.0	37.5	18.4	.144	.283	.520
The Bhatus (Criminal) (Majumdar) (113) ..	27.4	24.7	39.8	7.8	.198	.297	.523
The Karwals (Criminal) (Majumdar) (155) ..	25.8	22.6	40.6	10.9	.188	.306	.508
The Korwas (Majumdar) (147) ..	31.7	35.6	20.4	12.3	.257	.158	.563

From the data in Table 2 above, it appears that the Korwas have the highest A and the lowest B value of all the tribes and castes of these provinces. The criminal tribes and the Tharus all show high B percentage, even the high caste groups have high B blood among them. Malone and Lahiri found 37.2% B



among 2,357 Hindus, an apparently heterogeneous lot. No other tribe in the U.P. has shown such high A percentage as the Korwas. The following table gives blood groups of tribes with high A percentage:—

TABLE 3.

	O	A	B	AB	p	q	r
Paniyans (Aiyappan) (250) ..	20.0	62.4	7.6	10.6	.461	.078	.447
Chenchus (Macfarlane) (100) ..	37.0	37.0	18.0	8.0	.252	.133	.608
Mundas (Macfarlane) (120)	33.33	30.0	29.7	7.50	.219	.214	.577
Angami Nagas (Mitra) (105) ..	46.06	38.78	11.52	3.64	.242	.081	.680
Lushai (Mitra) (141) ..	32.63	44.68	16.31	6.38	.308	.128	.572
Konyaks (Br. Assoc.) (127) ..	45.7	40.2	10.2	3.9	.251	.072	.676
Korwas (Majumdar) (147)	31.7	35.6	20.4	12.3	.257	.158	.563

The data above show that A is considerably high among those tribes who are more or less isolates or have not been much disturbed by contacts. The Korwas of the U.P. are the most primitive element in the population of the Province, and the hill Korwas yet live in wild state in Sarguja forests and in Jashpur. The Konyaks, the Lushais, the Nagas, the Paniyans and the Chenchus all represent more or less inbred groups, and the Mundas of Chotanagpur inhabit a compact area and appear to have maintained their racial type. In all tribes the percentage of B is small and in some cases insignificant. As I have pointed out in a recent paper on the Bhils of Gujarat and their blood groups (*Current Science*, 1942, No. 9 and *Journal of the Gujarat Research Society*, Vol. 4, 1942) the standard size for blood group samples has to be determined before any valid conclusions about either the racial importance of blood groups or their genetic implications could be interpreted.

If we compare the tribal data in Table 3 with those from tribal groups elsewhere, we find similarity in percentage variation. Cleland and Burton (1929) found 56.2% A among the Australians and in (1930) the same authors found 58.4% A among them. Lee and Douglas found 60.3% A among 377 Australians investigated, while Tebutt and McConnel by investigating 1,176 cases found 36.9% A. In all these samples the percentage of B was very small. The Bantus of Africa have 19.2% B (Pyper, 1930), American Negroes 20 (Snyder), Solomon islands 16.8 (Howells, 1937), Samoa 13.7 (Nigg). Thus B is small or insignificant among very primitive tribes, and A is very high, in some cases 60% or more.

India has a high B concentration. A high percentage of B is found from India to Korea (Snyder). According to Hirzfelds (1918), the Hindus have 41.2% B. Malone and Lahiri found 37.2% B among the U.P. Hindus, Liu and Wang (1920) found

41.2% B among the North Chinese, Libman found 37.8% B among the Khirghiz, Melkich found 37.5% among the Buriats. In an earlier paper I have shown that the B incidence is most marked among those social groups which have passed from the tribal to caste status or those which are known to be hybrid castes. The depressed castes of Bengal show high B incidence, so do the criminal tribes of northern India. In other words, as soon as we include in our survey those tribes which are known to be mixed or those who from the nature of their occupation or otherwise allow inter-tribal marriages and extra-marital relationship with neighbouring tribes and castes, the percentage of B suddenly increases.

Whether India had any share in the dispersion of B, whether as it has been pointed out by some serologists, B has spread to Africa through Western Asia and eastward to Malaya Archipelago and further east, is too early to say. Howells (1933) thinks, B spread from central Asia and India through Indonesia to the Philippines along with Hindu influence as late as the first millennium A.D. and filtrated into Europe and still later with Oriental trade.

Dr. Gates has suggested that the A blood group arose through an O race of men in a particular locality developing the ability to produce the A mutation with a sufficient frequency for it to spread without the aid of selection. Regarding the priority of the origin of A, Gates argues that since various primitive and outlying peoples have A with little or no B, the A must have arisen much earlier in human evolution than B. The absence of B in Australia or its very small incidence is significant and Dr. Gates thinks that the B mutation has never appeared among them, and the very low percentage of B has probably been derived from crossing.

Two facts militate against the above hypothesis. In anthropoid apes which are the nearest kins of men, identical blood groups as in man occur. In the Gorilla and Chimpanzee only the A blood has been found and no B. Of 76 Chimpanzees tested, 71 were A and only 5 were O (Gates, *Sonderdruck aus Zeitschrift für Rassen Kunde Jahrgang*, 1939, Band IX, Heft I). The Asiatic Orang-Utan showed 4 A, 5 B, and 2 AB out of 11 and of 10 Gibbons there were 2 A, 6 B and 2 AB. Thus the African anthropoids show all A with a sprinkling of O while their Asiatic colleagues show a high percentage of B. Orang (5+2) B and AB, Gibbon (6+2) B+AB. The lower monkeys, however, have not shown agglutinogens corresponding to the human agglutinogens A, B (Landsteiner and Miller). If the races have had different ancestry, the blood groups of the anthropoids could throw some light on the distribution or dispersion of the groups.

If the four blood groups all existed in man as is suggested by some scholars, the distribution of blood groups today may probably be explained by isolation and migration. Even if

there has been parallel mutations in man and apes, as suggested by Snyder, and which, we are told by Gates, is 'entirely in harmony with modern genetic conceptions', the rate of mutation is such that the incidence of the four groups in the population of the world is difficult to explain. It has been estimated, for example, that the rate at which mutations occur in the case of a character like blood group with no selective value, is insufficient to explain their maximum frequencies today. If A and B are mutations from O then, according to Wymen and Boyd, it would require 745,000 years for the genes A and B to attain their present frequencies. Gates has proved with the aid of Prof. Fisher that, if the mutation from O to A were 1 in 100,000 then without any intervention of selection, there would be 10% of A in the population after 250,000 years. The present frequencies would require so high a mutation rate that many consider it simply improbable. But Gates thinks there are periods during which particular mutations occur at a greatly increased rate, if so, then the mutation hypothesis receives additional arguments.

Macfarlane thinks that B has been in India for millennia and may have originated here in the ancestors of the lower castes of the north-east where the highest concentrations are found whence it has diffused into the higher castes. As the amount of O and B vary inversely, she thinks, that there may be genes for O in these low caste people with a relatively high mutation rate for B. Whether the centre of B mutation exists in the north-east or elsewhere, it is too early to say with any degree of probability. India has a population of 400 millions and 3 to 4 thousand blood groups tests are not adequate by themselves to explain the source of blood groups mutations or even the distribution of the genes. The Bhil data as I have pointed out elsewhere, will serve as a pointer.

Whenever two sections of the same people have been tested by the same author, one living isolated or inbred the other allowing intermixture, one living on the hill tops, the other in the plains district, divergent results have been noticed. The two Maler groups tested by Sarkar gave different A percentages, one group of 139 gave 15.83 A, another group of 235, 25.53. Two groups of Bhils were tested by Macfarlane in one (*n.* 44) 31.8% were O, 13.6 A, 52.3 B and 2.3 AB, in the other (*n.* 140) 18.6% were O, 23.6 A, 41.4 B and 16.4 AB. The Hill Doms of the U.P. showed 36.0% O, 20.9 A, 33.8 B and 10.2 AB, but the Doms of the plains, of the eastern districts, gave 32.8% O, 22.8 A, 39.4 B and 4.4 AB. The blood groups of the Korwas have shown a high percentage of A and a low percentage of B which distinguishes them from many of the tribes and castes we have tested, but line them up with many of the primitive tribal groups, whereas among the Paniyans we have the highest percentage of A, and the lowest B available in India. The results of blood group investigations have so far been extremely interesting and

significant, and we hope more workers will toe up with those in the field to map out the blood group distribution in India and the gene frequencies involved.

The testing sera were made at Lucknow by Dr. V. S. Manglik of the King George Medical College and the potency calculated by titration. I am thankful to Dr. Manglik for his ungrudging help. I am also grateful to the Imperial Serologist, Calcutta, for supplying me with testing sera which supplemented my stock and also helped me to check the potency of those made at Lucknow. The control was provided by my own blood which is B and that of my peon which is O. The blood was collected from the forefinger of the left hand by pricking with an automatic needle calibrated according to requirements. The usual precautions were taken to make the results free from prejudice.

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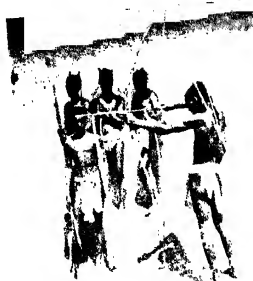
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The 'Rin-Hbyun'.

(Introduction to an unpublished Tibetan Iconographical Work.)

By REV. F. A. PETER.

(Communicated by Dr. S. K. Chatterji.)

In the great and interesting field of Lamaistic iconography, comparatively little work has been done so far. A variety of reasons have combined against our fuller understanding of the developments which influenced the religious art of the great churches in Tibet, and our appreciation of it has consequently suffered.

For one thing, the number of Tibetan scholars is far too limited, and for another, the material available to the student in our libraries is still more so. Indigenous Tibetan works are generally unavailable.

But even as one comes into contact with Tibetan lamas, it is difficult to gain more than a superficial picture of their culture, since the majority of them show very little interest in the thought-content of their own religion, and the few that have a deeper knowledge are extremely reticent to impart it to an outsider.

I consider myself fortunate to have made the acquaintance of several well-read lamas who have helped me a great deal in my studies of their religious art during the years of my stay in Ladakh and Lahoul as a Moravian missionary. One of them, who is no mean artist himself, allowed me to copy his books on painting and sculpture and the crafts connected with them, and eventually helped me to procure a copy of the *Rin-hbyun*, which had been brought back by one of his ancestors from a journey to Tibet and Mongolia.

Before the book came into my possession I had it only on loan for a limited time. Although two copies of the *Rin-hbyun* had found their way into libraries outside Tibet, I was unaware of this fact, since neither of them has as yet been published. But, realizing its importance for the study of Lamaistic iconography, I was anxious to preserve a full record of it.

As I had not a sufficiently good camera at my disposal, I decided to make a complete set of tracings of the pictures, including the *dhāraṇīs* which are printed at the back of each. Necessity here turned out to be a virtue, because a number of pictures, especially among those crowded with small figures,

had become blurred through the printing, and the photographic process would have rendered them still more indistinct. By carefully tracing them, however, I could delineate the figures distinctly, viz. Plate No. 5, folio 128 compared with the copy of the original on Plate No. 8. On the whole, the prints taken from wood-blocks are remarkably clear. Naturally, my tracings do not pretend to reproduce the artistic merit and the superb craftsmanship of the original.

Through the kindness of the Royal Asiatic Society of Bengal, I am enabled to publish here a few sample pages and an introduction to the *Rin-hbyun* which, I hope, will be followed soon by its complete edition. The work seems to be rare in Tibet itself and for years I have vainly tried to obtain a copy from there.

Of Lamaistic pantheons, so far the following have been reproduced and commented upon:

1. A pantheon of three hundred figures composed by the *lChaṅ-skyā Hutuktu Lalitavajra*, which dates back to the time of the Emperor Ch'ien-lung, 1736–1796 A.D. The pages show 3 pictures each with the names in Tibetan underneath.

This pantheon has been described and edited several times. Twice in German:

'Das Pantheon des Tschangtscha Hutuktu' by Eugen Pander, edited by Albert Grünwedel in 'Veröffentlichungen aus dem kgl. Museum für Völkerkunde in Berlin' I 2/3, 1890.

'Das lamaistische Pantheon' by Eugen Pander in 'Zeitschrift für Ethnologie', 1889.

and once in Russian:

'A Collection of 300 Buddhist Pictures', edited by Sergei Feodorovich Oldenburg in the fifth volume of the 'Bibliotheca Buddhica', St. Petersburg, 1903.

These are reproductions of a xylograph of which the wood-blocks are still preserved and prints procurable in Peiping, according to W. E. Clark, from whose work, 'Two Lamaistic Pantheons', Harvard, 1937, these and some of the following notes have been taken.

2. The photographs of a manuscript entitled: *Chu Fo P'u-sa Sheng Hsiang T'san* ascribed to an unnamed *lChaṅ-skyā Hutuktu*, brought by Baron von Staël-Holstein to Harvard, and reproduced and edited by W. E. Clark in 'Two Lamaistic Pantheons', Harvard, 1937.

This pantheon contains a different collection of 360 figures from the one edited by Grünwedel and Oldenburg. The figures have Tibetan names underneath and Chinese names above, whilst the Mongolian and Manchu names are given on either side.

Staël-Holstein believes that it has as its author the same Lalitavajra who composed the other pantheon of 300 figures referred to above.

Neither Oldenburg's nor Clark's work gives the colophon or any other direct indication from which to judge the authorship or date of these collections.

3. In the same book, 'Two Lamaistic Pantheons', Clark gives a magnificent set of photographs of a different Lamaistic pantheon altogether: They are the reproductions of a collection of bronzes and statuettes found by Staël-Holstein in the *Pao-hsiang Lou*, a temple in the Forbidden City at Peiping. The name is given underneath each idol in Chinese.

This collection consisted originally of 787 statuettes, of which 31 have since been stolen or lost. It, too, dates back to the reign of the Emperor Ch'ien-lung, and may possibly be a collection of bronzes which he presented to his mother on her eightieth birthday in 1771 A.D.

All these three pantheons date back to the reign of the Emperor Ch'ien-lung, 1736-1796 A.D. None of them gives, like the *Rin-hbyun*, *dhāraṇīs* for the gods depicted.

As I mentioned above, the *Rin-hbyun* with its two appendices, the *Snar-thaṇ* and the *Rdor-phren*, has not been published so far. One copy of this book exists in Berlin, and Grünwedel has made considerable use of it in describing and illustrating Lamaistic art and iconography, e.g. some pictures taken from it appear in his 'Mythologie des Buddhismus'. Clark, in the introduction to his work, mentions a second copy which belonged to the late Berthold Laufer, and which is now in the Field Museum in Chicago. He further mentions a complete set of photographs of the *Rin-hbyun*, *Snar-thaṇ* and *Rdor-phren* which Staël-Holstein brought to Harvard. It appears, therefore, that the copy described here is the third of the original reprints to find its way outside the home-countries of Lamaism. I mentioned before that it seems rare in Tibet itself.

The first and main portion of this work is called *Rin-hbyun*. The pages always contain 3 pictures and have the corresponding *dhāraṇī* at the back of each.

The pages are numbered 1-143. Preceding No. 1 is a title-page which has 3 figures: *rGyal-tshab-rje* on the left, *rJe-Rin-po-che* in the middle and *mKhas-grub-rje* on the right, viz. Plate No. 1 top. This title-page is not numbered and similarly there is a double page inserted after No. 70. On the other hand, pages No. 46, 47, 48 are contracted into one page, also 49 and 50 into one and 51 and 52 into another page. Thus 7 pages are reduced into 3, although they bear the full numbers. Page 143 contains the colophon, a dedicatory prayer, which is given at the end of this article together with a translation, viz. pp. 16, 17.

Clark in the description of the photographic copy at his disposal also mentions the additional pages to No. 1 and No. 70, and speaks of a further one after page 110 which he describes as a duplicate of No. 117. This insertion is not contained in

my copy. He does not mention, however, the abridgement of pages 46-52 into 3 pages.

After the *Rin-ḥbyuñ*, there follows in the copy described by Clark the first appendix called *Snar-thañ*, which consists of 12 pages with pictures, and a thirteenth containing the colophon. From my copy this appendix is missing altogether. The second appendix, called *Rdor-phreñ*, consisting of 17 pages with pictures and 3 containing the colophon for the whole work, is in both copies alike. This colophon, too, is given at the end of this article both in Tibetan and in a translation, viz. pp. 17-24.

The abridgement of the folios 46-52 not mentioned by Clark, and also the absence of the *Snar-thañ* from my copy, suggest that it is a later print from the same blocks used for the copy described by him. My copy has a total of 471 pictures.

That the *Snar-thañ* was originally included and is not a later addition is evident from the colophon at the end of the whole work where this appendix is mentioned between the *Rin-ḥbyuñ* and the *Rdor-phreñ*, viz. text and translation of this colophon on page No. 21, line 35.

With regard to the abridgement of folios 46-52 probably parts of the original blocks became unusable and the good parts were combined and numbered accordingly. Perhaps the same happened with the blocks of the *Snar-thañ*, or else they got lost altogether. The omission of this portion may also be due to the loss of these pages from this copy. It would be interesting to know whether the copy at Berlin belongs to the earlier or later edition.

On comparing the order and subject-matter of the two pantheons ascribed to the *IChañ-skyā Hutuktu* as edited by Oldenburg and by Clark respectively, the similarity in the structure of the two is striking. Both start with pictures of historical personages chosen from amongst the 84 Mahāsiddhas and famous Lamas that were canonized. They are given in historical order and are followed in both works by tantric deities, usually in unison with their śakti. After these comes a large section of pictures of Buddhas and Bodhisattvas, and following them are the forms of *Tārā*. Next are the *Sthaviras* (Tib. gnas-brtan), Arhats of the Mahāyana system and its apostles and missionaries. The last portion is devoted to other gods and goddesses, mostly of the 'terrible' aspect (Tib. drag-poi-lugs). The closing pages are different in both books, and throughout they give by no means identical selections of pictures, but the general outline is the same for both. If they are not actually the work of the same author, the one is unquestionably based on the other, showing a marked difference only in their style of drawing. I suppose that the earlier of these was the pantheon edited by Oldenburg in the 'Bibliotheca Buddhica'.

The main idea underlying both works is that of a selection representative of the Lamaistic pantheon according to the

Gelugpa sect, the Reformed Church. It is unfortunate that neither of them has a colophon or any other indication giving particulars of purpose and authorship, at least the published reprints are without such.

From the colophons of both the *Rdor-phren* and the *Rin-hbyun*, it becomes evident that the idea underlying the selection of deities in these books is for a different purpose, and therefore bears quite a different character. They are meant to be aids to meditation. Their purpose is not so much to give a general collection from the pantheon as a whole but to illustrate particular meditation-systems. They bring therefore only those deities mentioned in these systems, irrespective of whether they are well known or obscure.

For meditation-exercises various deities in their mild, angry and fierce forms are combined into a 'magic circle' (Skt. maṇḍala, Tib. dkhyil-hkhor). The whole of the *Rdor-phren* constitutes such a maṇḍala, and is itself derived from a combination of two maṇḍalas, as I shall show further down. The *Rin-hbyun*, on the other hand, is a collection based on the maṇḍalas that are in general use with the adherents of the Reformed Church, the yellow-hatted Gelugpas. It gives the deities in accordance with their canon only, and does not take notice of such as do not occur in their maṇḍalas. The *Rin-hbyun* one could therefore describe as a systematization of maṇḍalas which is called in Tibetan *sgrub-thabs*, which means, literally translated, 'method of accomplishing'.

The aim of meditation, according to the lamas who use these systems, is to establish a union between the gods and the worshipper, which, if it is completed, will give him access to their powers. The pre-requisite for accomplishing this is to have a correct mind-picture of those divinities on which one contemplates and to know the proper formula (Skt. dhāraṇī, Tib. gzuñs-sñags) with which to bind them.

Long before the *Rin-hbyun*, *Snar-than* and *Rdor-phren* were published in this illustrated form, they existed in writing. The pictures for the *Rin-hbyun*, for instance, are probably taken from a system which *Ža-lu*, one of the Grand-Lamas of Galdan, translated from an earlier Sanskrit work. The fact that it is based on fixed formulae for meditation explains why some very obscure forms of little-known divinities occur in it, whilst other very common images are not given at all. The reason for their omission was that they did not fit into the maṇḍalas as conceived by their author. To mention only one such case: throughout the *Rin-hbyun* and *Rdor-phren* there is not a single picture of one of the best known images of the pantheon—*Rdo-rje-hjigs-byed* (Skt. Yamāntaka). According to the index published by Clark, in which he gives the names of deities contained in the *Snar-than*, it does not occur in that work either. Another such instance is, that the very frequent form of *Byams-pa* in the

'rising pose'—sitting on a chair—is also not given in either of these works.

Another fact that is of significance in this connection is the apparent disorder of the contents of the *Rin-hbyun* and its two appendices compared with the two pantheons by Lalitavajra. The book begins with some pictures of the goddess *Tārā* (Tib. sgrol-ma) but her other forms, so neatly grouped in the other works, are here dispersed throughout its course. Similarly, we have some Buddhas and Bodhisattvas in the beginning, whilst the main body of them only follows in the middle of the book. In a few instances there are duplicates even, e.g. there are two almost identical sets of the 4 'World Keepers' (Skt. Dhṛtarāṣṭra, Tib. Yul-ḥkhor-sruṅ), one towards the beginning and one towards the end of the *Rin-hbyun*. Or on page 38, viz. the reproduction of it on Plate 3 top, we have twice the identical pictures of *Spyan-ras-gzigs-sems-ñid-nal-gso* on the right and left of the central picture.

There is, further, no attempt made anywhere at depicting the succession of saints, the Mahāsiddhas and famous Lamas, which the two pantheons show in their opening pages. The pictures of Tsonkapa with his two famous successors on the title-page, viz. Plate 1 top of the appended samples, is meant only as a dedication. Similarly, the figures of the 18 *Sthaviras*, 3 of them are shown in the reproduction of folio 7, viz. Plate 2 bottom, are not given to outline the succession of saints; they, as Arhats, are classed with the Bodhisattvas rather than with the saints.

All these facts indicate that the purpose of the *Rin-hbyun* was not to create a pantheon so much as to illustrate an already existing system of meditation. The author of our book, therefore, did not group and select from the available material in the pantheon, but followed a set text.

Without the knowledge of how to assess the powers attributed to the gods and goddesses shown in the *Rin-hbyun*, *Snar-than* and *Rdor-phren*, it is impossible to perceive the guiding principle behind their choice and sequence. But, given that knowledge, I have no doubt that an order would be quite apparent.

In the colophon of the *Rdor-phren*, we find mentioned the main source of Lamaistic tantric doctrines: the *rGyud-sde*. It comprises a large section of the 100 volumes of the Kangyur (Tib. bkaḥ-hgyur), the Lamaistic canonical writings, and the still more voluminous commentaries of the Tangyur (Tib. bstan-hgyur), which contains the descriptions of nearly all deities of whatever shade,—friendly, angry or terrible. The Kangyur and Tangyur represent a collection of thousands of treatises dating over many centuries. In the colophon the *rGyud-sde* is rightly called an 'ocean', considering the vastness of material stored in its pages. It is little wonder, therefore, that there are a good many other *sgrub-thabs* in existence beside the *Rin-hbyun*, all based on the *rGyud-sde*. In spite of claiming a common

origin, their contents vary greatly, according to the systems they represent, and so do even the descriptions of deities of one and the same name.

Out of the great mass of material available, various sects, and within each sect various divines, have evolved different maṇḍalas and combined and systematized them. In all the biographies of famous lamas, as found in Tibetan books, one comes across enumerations of these, some which they learned and practised beside others which they created. The mastery of any such maṇḍala is supposed to confer on the devotee all the powers of the divinities with which it deals, and it could therefore suitably be compared to the initiation into a mystic cult.

The contents of the *Rin-ḥbyun* with its two appendices may be taken to be fairly representative of the pantheon of the Reformed Church, the Gelugpa sect, although this is not its primary object. How much the systems of the other sects, especially those of the unreformed sects, differ from it a perusal of their books shows. One such '*sgrub-thabs*' as used by the lamas belonging to the *ḥBrug-pas*, one of the semi-reformed sects wearing the red hat, came into my possession. Its title is: *sGrub-pai-thabs-rgya-mtshoi-che-ga-rjes-gnan-dan-bcas-pa-ḥdod-dgui-dpal-gter*. It gives brief descriptions of 154 divinities, their mudras and attributes, together with dhāraṇīs, apart from other information concerning their invocation and coercion. Tempting as the subject is, a comparison of the various works, the variations and new forms they give, would fall outside the scope of this article.

A standard work dealing systematically with the whole, complex subject of Lamaistic iconography does not seem to exist either within Tibetan literature or outside it. Yet without it, the identification of idols and images, e.g. on the banners (Tib. *than-ka*), that have found their way into numerous collections will always remain a problematical and difficult task with regard to the obscurer forms. Often such identification is quite impossible unless there is a clear indication whether the banner originated from one of the yellow-hatted or red-hatted sects, and therefore represents figures of the one's or the other's pantheon.

The books and temple-pictures of the Gelugpa order, the reformed sect, are usually recognizable by their references to their founder, the great reformer Tsonkapa, or to *Byams-dpal* (Skt. Mañjuśrī) whose incarnation he claimed to be. Tanka generally show him, with his distinctive yellow hat, above the middle figure or in the centre of the composition. Frequently he is found forming a triad with his two most famous disciples. On the title-page of the *Rin-ḥbyun*, we have this triad. In the middle figure, he is shown as *rJe-Rin-po-che* (lit. the Master of Great Value), one of his most common designations, with *rGyal-tshab-rje* (lit. the Vice-Master) to his right and *mKhas-*

grub-rje (lit. the Master of Learning) to his left. On the last page of the *Rdor-phreñ* colophon, with which the whole work closes, we find again a reference to Tsonkapa. Here he is called: *bLo-bzañ-dpal-ldan-pai-bstan-pai-ñi-ma-hphyogs-las-rnam-rgyal* (lit. Lobzang, the Illustrious, Sun of the Doctrine, Conqueror in All Directions). *bLo-bzañ* was Tsonkapa's proper name, whilst Tsonkapa (Tib. *tson-ka-pa*) means 'Man from the Onion-Valley' referring to his place of birth.

In this connection, it is interesting to note that Tsonkapa is known by the bewildering number of 240 names. In historical works of the Gelugpa sect in which we find very exhaustive and detailed accounts of his life and activities,—he was born in the fire-bird year of the 6th cycle, 1357 A.D. and died in the earth-pig year of the 7th cycle, 1419 A.D.—we have complete lists of all these names and designations. When circumstances allow, I hope to publish the full text and translation of at least one of these histories.

Waddell gives in his 'Lamaism' the figures for Tsonkapa's life as 1355–1417 for his birth and death respectively. That the Chronological Tables in his book as well as other chronological data in it are in many instances incorrect is, I believe, a well-known fact. Dates in Tibetan historical works are given according to the Tibetan calendar. I have based my calculations on the fact that the year 1942 is the water-horse year of the 16th cycle. The year 1 according to the present Tibetan calendar is our year 1027 A.D., the year in which the Kālacakra system was introduced into Tibet. Grünwedel, Laufer and others also arrived at 1027 for the year 1, from which all other dates automatically follow, proving Waddell's dates wrong.

Since there has been considerable speculation on the exact relation between Tsonkapa and the other two lamas who form with him this frequent triad, I shall briefly outline their significance for the Gelugpa sect.

In 1403 Tsonkapa founded the monastery of Galdan near the capital, Lhasa; its full name is: *hBrog-dgañ-ldan-rnam-par-rgyal-bai-glin*. He made it the chief seat of learning as well as the administrative centre for the newly founded Reformed Church (Tib. *dGe-lugs-pa*). At the same time it became his residence, and from here he ruled over the rapidly expanding organization as his reformation spread drawing other monasteries into its fold. His successors on the throne of Galdan became for some time after his death the leading figures in the Reformed Church.

The one whom Tsonkapa ordained as his successor was the most able among his disciples, and only a few years his junior: *Dar-ma-rin-chen*. He was born in the wood-dragon year of the 6th cycle, 1364, and succeeded Tsonkapa on the throne in 1419 and was given the title of Vice-Regent (Tib. *rGyal-tshab-rje*) on his accession. The title-page of the *Rin-hbyun* shows him on

the right of Tsonkapa. He reigned from 1419 till 1431, when he nominated his successor and died early in the following year, the water-mouse year of the 7th cycle, 1432. *Dar-ma-rin-chen* guided the newly founded and still fast growing church through all sorts of vicissitudes arising from the opposition of the other sects. At the same time he was a man of wide knowledge and wrote a great number of books.

His successor on the 'lion-throne' (Tib. *Señ-ge-kñri*), the name by which the throne of Galdan is usually referred to in the writings of the Gelugpas, was *mKhas-grub-dGe-legs-dpal-bzan*, born in the wood-ox year of the 6th cycle, 1385. He studied under Tsonkapa himself and proved an ardent adherer of the reformation. He had distinguished himself by founding many monasteries and monastic schools. The active part he had taken in politics brought him into conflict with the rulers of Tibet and he had to flee from their wrath and live for some years in a lonely hermitage. On succeeding *Dar-ma-rin-chen* in 1431, he so ably handled the affairs of the Gelugpas that King *Rab-bstan*, their persecutor, had to come to the fortified castle of *Snëu-rdzoñ*, a few stages from Lhasa, and make peace with him. The Canossa of Tibet, *mKhas-grub-dge-legs-dpal-bzan*, died in the earth-horse year of the 7th cycle, 1438. He is the *mKhas-grub-rje* on 'he left side of Tsonkapa.

This line of successors, called the '*Chos-rjes*' of Galdan, has continued for a long time and there are records of some 47 incumbents up to the 18th century. It should not be confused with that other succession, the line of reincarnations of *Avalokita*, later called the Dalai-Lamas, which, too, started after the death of Tsonkapa, but at the other big monastery of the Gelugpas, Draspung (Tib. *dpal-ldan-lhbras-spuñs*), and which in course of time completely overshadowed the *Chos-rjes* of Galdan.

The same triad of *rJe-Rin-po-che*, *rGyal-tshab-rje* and *mKhas-grub-rje* also occurs in the pantheon edited by Oldenburg on page 14, pictures 40, 41, 42, and in the one edited by Clark on page 230, pictures 21, 22, 23, although in the latter the order of the figures varies.

The fact that all the three works show this triad proves that they, and for that matter also the big Tsonkapa statue in the centre chapel of the *Pao-hsiang Lou* temple in Peiping, and the collection of bronzes there, are due to the efforts of the Yellow Order, the Gelugpas. It would greatly help the study of Lamaism if we had a similar pictorial work from one or the other of the unreformed sects, the Red Orders. I am not aware that any such collection has been brought to light, and up till now we have to rely solely on descriptive works, as the one I cited above. It is to be hoped that as knowledge about the treasures of their temples and libraries advances, such a collection will come to light.

It may be asked why the Reformed Church produced these illustrated works when no such book existed, or at least was not generally known, from among the orthodox sects. Apart from seeking a reason for this new development in the greater vigour that the reform-movement showed in all its activities, soon eclipsing the old orders altogether, we may attribute the attempts to systematize and illustrate the pantheon to historical changes which brought the new church into contact with the Mongolians living on Tibet's northern border.

In the times of the Mongol Emperor Khubilai-Khan, the abbots and rulers of the Saskya monastery were the spiritual heads of his vast empire, where Lamaism became the state-religion. Apparently, however, its hold on the Mongols themselves never was so firmly established that it supplanted their Shamanism. With the fall of the Mongol Dynasty and the loss of the Chinese Empire in 1368, not only did the Mongols lose their unity, but in the endless wars in which their rulers fought each other, Buddhism became all but extirpated and the people fell back into their former shamanistic practises. About 1560, Altan Khan had become the most powerful among their rulers, and cherishing dreams of re-establishing the Mongol Empire, he sent to Lhasa and invited the Grand-Lama to his court. This was no longer one of the Saskya Hierarchs but the head of the Gelugpas. The one to follow this invitation was *mKhas-grub-bSod-nams-rgya-mtsho*, who held undivided sway in the Yellow Church by being the head of both Galdan and Draspung. He was regarded as the third reincarnation of *Avalokita* (Tib. *Spyan-ras-gzigs*) and therefore called 'Rgyal-ba', i.e. Buddha. He was not slow to size up the possibilities of the situation and from the outset took the greatest interest in the reconversion of the Mongols. In the book *Hor-chos-byun* by *hJigs-med-nam-mkha*, Tibetan text edited by Huth, 1893, on pp. 138 and the following, we have a long description of his visit to Mongolia in 1578, in the course of which Altan Khan received the title *Se-chen-rgyal-po*, he in turn giving the Grand-Lama the title *rDo-rje-hchan-Tah-lai-bLa-mai-tham-ka-rgyal*. Since that time *bSod-nams-rgya-mtsho* and his successors are called Dalai-Lamas. Here we have also the edict by which the King forbids his people to follow any but the practices and doctrines of Lamaism.

A time of great religious activity set in. Many monasteries were founded, great translations undertaken and the establishment of the Yellow Church much more vigorously pressed than under the Saskya Lamas 300 years before. Probably out of the necessity to acquaint the Mongols with the Buddhist pantheon, and in order to make the meditation-exercises and mandalas more readily accepted by their lamas, the unwieldy descriptions were changed into pictures which, in the nature of things, are more easily remembered and assimilated.

Even if this difficult and laborious task was not carried out at once, the idea underlying the publication of a work in pictorial form like the *Rin-hbyun* dates from the days and circumstances of the Mongol reconversion.

When *mKhas-grub-bSod-nams-rgya-mtsho* died,—the first to hold the title Dalai-Lama,—he was reborn in the nephew of Altan Khan, who as the second Dalai-Lama was named *Yon-tan-rgya-mtsho*, born 1589. Since he had to take up his place at the head of the Church and go to Tibet when he was 13 years of age, a Vice-Regent was appointed for the Yellow Church in Mongolia, during his absence. The choice fell on *dGe-hdun-dpal-bzan-rgya-mtsho* who was the incarnation of *rJe-btsun-byams-pa*, who died in 1557. Particulars about this we find in the above-cited work *Hor-chos-byun*, Tibetan text, p. 155. He stayed in Mongolia and his successors after him, and they became the most powerful among the Grand-Lamas of that country, second only to the Dalai-Lama himself. They resided at Urga (Tib. Khu-re) and are known as *Maidari Khutuktu*, their Tibetan title being *rJe-btsun-dam-pa*, 'His Holy Reverence'.

From the colophon of the *Rdor-phren* it appears that the wood-blocks for the pictures of the *Rin-hbyun* and its two appendices were done during the reign of King *bLo-bzan-dKon-mchog* by request of *Ratna-Badzra* (Tib. Rin-chen-rdo-rje) 'the Fourth in the line of Incarnations of *Spyod-hchan-nag-po*', viz. page 19, line 19. Further down in the same colophon, we have a reference to the same king and a *Rje-btsun-dam-pa*, viz. page 21, line 32. *Ratna-Badzra* was apparently this 4th *Rje-btsun-dam-pa* and therefore the 3rd Grand-Lama of Urga. Unfortunately, I have at my disposal neither a list of the kings of the Mongolian dynasty together with Tibetan equivalents of their names which would show who King *bLo-bzan-dKon-mchog* was, nor the dates for the successive Grand-Lamas of Urga, which would give the dates of *Ratna-Badzra*'s life. Without them, it is impossible to say with accuracy when the *Rin-hbyun* was edited.

Failing the exact lists, we can arrive at the dates for the lifetime of *Ratna-Badzra* by other information at our disposal: The first to become *Maidari Khutuktu*, or as he was then styled, Vice-Regent, was *dGe-hdun-dpal-bzan-rgya-mtsho*, born in 1558. He was installed when *Yon-tan-rgya-mtsho* was 13 years of age, i.e. in 1602. Being a man of 44 years then and assuming him to have lived till 60, he must have died about 1618. Abbé Huc in the account of his travels in Mongolia tells of his visit to Urga in 1844. He saw the reigning *Khutuktu*, who was the 7th of the Grand-Lamas and still a young man. Assuming him to have been 20 years at that time, he was born about 1824. In the intervening period of 208 years between the death of the first and the birth of the seventh, 5 Grand-Lamas lived, each with an average lifetime of 42 years. The 3rd *Khutuktu*, our *Ratna-Badzra*, would have lived, according to this reckoning,

from 1658–1700. I do not think that we go far wrong by assuming for the *Rin-hbyun* a date between 1650 and 1700.

The internal evidence of the composition and the execution of the pictures in the *Rin-hbyun* compared with the two pantheons also points to it being a forerunner of the other two. As such it constitutes the earliest attempt to depict gods of the Lamaistic pantheon in a systematic collection that has hitherto come to light.

I have mentioned before that the *Rdor-phren*, as well as the *Rin-hbyun*, had existed in a written form on which the illustrated edition is based. Waddell in his 'Lamaism', pp. 326-327, in discussing treatises on the Lamaistic pantheon, mentions a work called '*Sgrub-thabs-brgya-rtsa*' which the famous *Ža-lu-lo-chen* translated into Tibetan from an earlier work by Pandit Bhavaskanda. From the same histories of the Gelugpa sect I referred to above, it is clear that this *Ža-lu-pa-legs-pa-rgyal-mtshan*, to give him his full title; reigned at Galdan from 1438 to 1450 as successor to *mKhas-grub-dge-legs-dpal-bzan*, the *mKhas-grub-rje* of the triads.

A supplementary work which gave also, if not solely, deities not mentioned in *Ža-lu's* book was edited by *Pa-ri-lo-tsaḥ-ba* some time in the 16th century. The name of this work was: '*Rin-hbyun-snar-than-brgya-rtsa*'. It was printed at the great press at Narthang near Trashi-Lhunpo. In Tibetan writings this work is referred to as '*Pa-ri-brgya-rtsa*', e.g. in the '*Hor-chos-hbyun*' we have it mentioned on p. 222.

These, then, seem to be the original sources which gave in text form what our work gives in pictures. It is unfortunate that Waddell did not see *Ža-lu-lo-chen's* book and has not left us a description or the exact date of it.

If, thus, the thought-content of the *Rin-hbyun* is traceable to an Indian source, this is still more apparent in the *Rdor-phren*, which is based on a maṇḍala-formula dating back to the time when Buddhism of the Mahāyana-school was still well established throughout Northern India. In the colophon of the *Rdor-phren* on page 18, line 4 we have a *ḥJigs-med-hbyun-gnas* mentioned as having evolved this maṇḍala. His Sanskrit name is *Abhayākara-gupta*, one of the Mahāsiddhas, who was born in the 9th century near Gaur (Bengal) and who upheld the cause of Buddhism against the advance of Islam into India. The same *Abhayākara* figures in the list of pre-existences of the *Paṇ-chen Lamas* of Trashi-Lhunpo as the 4th in this succession. That he is generally believed to be the originator of the maṇḍala underlying the *Rdor-phren* is also borne out by a passage in the repeatedly cited work: '*Hor-chos-hbyun*'. On page 222, the following sentence occurs: *paṇ-chen-ḥjigs-med-hbyun-gnas-la-rje-btsun-rdo-rje-rnal-hbyor-mas-dños-su-btsal-pai-rdo-rje-ḥ p h r e ṇ - bai-dbañ-rdzogs-par-gnañ*. 'He handed on the full power of the

Rdo-rje-hphren-ba which actually had been given by *Vajradākinī* to *Ācārya Abhayākara-gupta*.'

Besides proving the theory that the maṇḍala underlying the *Rdor-phren* originated with him, this sentence also shows that it was regarded as an initiation ceremony into the powers of the divinities enumerated in it.

In another passage taken from one of the historical works referred to above, the following passage with regard to the studies of the second predecessor to the Dalai-Lamas, *dGe-ḥdun-rgya-mtsho* (1479-1541), occurs: '*Rdo-rje-hphren-ba-dan-kri-ya-sa-mutstsha-gñis-gcig-tu-hdri-pai-dkyil-hkhor-ḥe-lñai-dban-rdzogs-par-gsan*'. 'He studied and absorbed the 45 powers of the *Rdo-rje-hphren-ba* and *Kri-ya-sa-mu-tstsha* maṇḍalas combined into one.' These studies took place in the year 1498 when, apparently, a written version of the *Rdor-phren* already existed.

According to Clark, the two pantheons, as well as the collection of bronzes, are of Chinese or Mongolian origin and date back to some time between 1750 and 1800. There can be no doubt that the *Rin-hbyun* and its two appendices were done in Mongolia, and were edited in their present form probably a century earlier between 1650 and 1700. Not only does the reference to the *Rje-btsun-dam-pa Ratna-Badzra* suggest their Mongolian origin, but the whole colophon is full of Mongolian titles and names, which leave no doubt that the idea leading to its publication originated in that country, and that the work was executed there, too. Apart from this, however, the colophon also shows that the work was assisted from Tibet by the active interest the Dalai-Lama took in its progress. Here, again, it is unfortunate that the reigning Dalai-Lama is not cited by name in the colophon, which would have enabled us to fix the date of this work.

But it was not the Mongols alone who benefited by this assiduous as well as costly attempt to illustrate, and thereby render clear, forms from the pantheon. Quite apart from their artistic value, these pictorial collections are a veritable mine of information and the *Rin-hbyun* even more so than the two pantheons. Since it is based on a written text, it is to be hoped that this, too, will one day be discovered and published. A comparison of such a text with the pictures would at once make clear much that is at present hid from our knowledge. I am thinking in this connection of the names for mudras, postures and attributes of the deities with which all Lamaistic writings abound, and on which our dictionaries and other sources of information are completely dumb. Yet without this knowledge much in Tibetan books is 'gibberish' to us, who do not understand either the meaning or the significance of the terms, and often do not even know to what they refer. The same is the case with the dhāraṇīs which are given for each deity at the back of the picture, and I am sure that one day they will

be of great value in the study of tantrism, that strange mixture of mysticism with the crudest witchcraft. A similar thing must be said of the pictures themselves. As in all Lamaistic art, every detail in them is symbolical, and unless that symbolical language is unravelled, we miss their true significance.

The goal of this art is not self-expression but to 'roll on the Wheel', to propound the doctrine. Hence the artist is not productive, setting forth his own ideas, but reproductive, reflecting 'the Teaching'. Therefore, orthodoxy is for him of the greatest importance and forms the standard for all his work. This tendency has preserved in Lamaistic art a picture of its original sources: The art of India of the Gandhara period. But apart from this outside influence, we get also a perfect picture of the indigenous, Tibetan demonology which gave Lamaism its peculiar stamp. Generally speaking, in the images of the 'smiling' (Tib. *ži-ba*) and 'angry' (Tib. *ḥkhro-ba*) deities, we have the Indian element, viz. Plates 2, 3 and 6, folios 4, 38 and 77, whilst the 'terrible' (Tib. *drags-po*) deities especially those shown in the last portion of the *Rin-ḥbyun* mainly represent that Tibetan element, viz. on Plate 5, folio 128.

From the *Rdor-ḥphren* colophon we know that the original drawings for the wood-cuts were done by 4 different men, viz. page 22, lines 39–41, if the long name on line 40 does not represent two men, which would bring the number of the artists engaged on this work up to 5. Although *Chos-rje-mkhas-grub-dge-slon-tshe-rin*, apparently a high dignitary, supervised the work, different styles of drawing are still discernible, e.g. one seems to have taken a special delight in miniatures. In the small square space available for each picture, he put a whole composition of many figures, such as one finds on banners (Tib. *thañ-ka*) which adorn every monastery, viz. Plate 3, folio 38 centre, or Plate 5, folio 128.

Frequently pictures contained in the *Rin-ḥbyun* were copied by later artists. One old Tibetan 'thañ-ka' which I have in my possession is to the last detail a copy of the picture of *Chos-rgyal-las-kyi-šin-rje-mthün-ka* on page 137 of this book. In the pantheon as edited by Oldenburg, too, there are a number of illustrations that are undoubtedly copies of this earlier work.

The *Rin-ḥbyun* brings another feature which neither of the two pantheons possesses. In the description of deities their colour is usually mentioned, at least when it cannot be inferred by their name or title, as it is frequently the case. In many outline drawings no difference is discernible, and only the variation in colour distinguishes two such forms. To indicate the colour of an idol, wherever the authors deemed it necessary, various letters are used for this purpose in these wood-cuts, generally to be found on some part of the figure. In the reproduction of page *dgu-beu* (ninety) on Plate 4, folio 90, the $\eta = k$ on the right arm of the first figure stands for *dkar-mo*

= white. In the next picture the goddess has a similar η just above the navel, although in this case her colour is already determined by her name: '*Lha-mo-tsunda-dkar-mo*' = the White Goddess Tsunda. The third picture of *Khro-bo-gzan-gyis-mi-thub-pa* has an α on the left leg of the 'yab', i.e. the male figure. This $\alpha = 1$ stands for *li-khri* = bright orange red. The μ on the right leg of the 'yum' (Skt. *ṣakti*), i.e. the female figure in front, stands for $\alpha = s$ and designates *ser-po* = yellow. As a rule, these letters are prominent, but sometimes they are so cleverly fitted into the drawing that they are noticeable only on closer examination. Unfortunately, the *Rin-hbyun* has not got these colour indications throughout, which would have still more enhanced its value for us.

Generally speaking, the standard of craftsmanship is high throughout the book, although different styles are evident. But this very variety adds greatly to its interest and artistic merit. In both the pantheons as edited by Oldenburg and Clark, each picture contains invariably only one idol, a rule from which the composition never departs. The *Rin-hbyun*, however, shows much greater versatility and freedom and especially towards the end the pictures are often crowded with figures, viz. Plates 5 and 6, folios 128 and 142. Beside much that is beautiful in these pictures there are also elements that are crude to the point of being revolting to our taste, yet they all being based on tantric conceptions serve to give us an insight into that strange cult with its heterogeneous mass of ideas.

Moreover, these drawings contain a good deal that is of interest by the delightful glimpses we get of the capabilities as well as limitations of the artists. They were men from the mountains and deserts of Central Asia and can give with a few lines an exquisite sketch of their country. Also their own animals: the horse, mule, camel, deer, wolf and tiger they draw very well, viz. Plates 5 and 6, folios 128 and 142. But when it comes to things from India, that were beyond their ken, and which they knew only from descriptions, they were at a loss: the elephant becomes a fat ox with a trunk, his feet furnished with claws. But worse fares the 'King of Beasts', the lion. He, with a thick, bushy tail, looks like one of the big dogs that guarded their tents, and is distinguished from them only by extravagant little tufts on his legs and paws, viz. Plate 6, folio 142 centre.

Whatever earlier pictures they had and used in setting up this work, there is no denying that these artists could wonderfully well adapt their style to their subject: the simplest of landscapes with all lines converging on the central figure for a Buddha in meditation, foliage and flowers to adorn the throne of a smiling goddess, and leaping flames, torn by the storm, around a fearful demon.

Although under present conditions the publication of a work like the *Rin-hbyun* is difficult, if only on account of the enhanced cost, I hope that it will be possible to make this important work for the study of iconography available to the interested public. The *Rin-hbyun*, more than any of the later works, repays careful study by giving a comprehensive picture of the Lamaistic pantheon from its serene Buddhas to its raving devils.

TEXT AND TRANSLATION OF THE COLOPHON OF THE
Rin-hbyun, p. 143.

NOTE.—In the following text and translation I have aimed at suiting the English as much as possible to the text of each line. Words in brackets are inserted to elucidate the meaning.

1. ཨོཾ་སྐྱེ།

Om svasti.

2. མཐོང་ཐོས་དྲན་པ་ཅམ་གྱིས་སྤྲིད་པ་དང་།

However well one may remember (things) seen or heard,

3. ཞི་བའི་རྒྱལ་པ་ཀུན་ལས་རབ་བསྐྱལ་ཏེ།

to be free from disturbances to one's peace (of mind),

4. ཅི་འདོད་དངོས་གྲུབ་བདེ་བླག་རྩལ་མཛད་པའི།

one desires realization, which (alone) gives supreme content.

5. ལྷུབ་ཐབས་ཟིན་འབྱུང་ལྡོ་ཚགས་སྤང་བརྟན་འདི།

The collection of the gods of the 'Rin-hbyun' Sgrub-thabs¹ has in this imagery

6. བཞེངས་པའི་དགེ་བས་རྒྱལ་འདིར་ཉེར་མཁོ་བའི།

been drawn up; the merit of this (new) form makes it indispensable,

7. མཐུན་ཉིན་སྤྱུབ་པའི་ཡན་གྱི་བདག་པོ་དང་།

(especially) on account of its conformity (with the original).
The author,

¹ A 'Sgrub-thabs' is a list of descriptions of deities, their attributes and powers, together with dhāraṇīs, for purposes of invocation and coercion.

8. | ལྷོར་བ་གཉེས་ལྡན་བཙོ་ཐོར་བཅས་པ་ཀུན།
the follower and, together with the two, (also) the
craftsmen,
9. | ས་ལས་ཤིས་བསྐྱོད་རྣམ་མཁྱེན་མྱར་འཛིབ་ཤོག།
may they, each one after the other, quickly receive perfect
enlightenment,
10. | གནས་སྐབས་ཚེ་རིང་ནད་མེད་བདེ་ལྡན་ཞིང་།
enjoying in this temporal existence long life, health and
happiness,
11. | ཞིང་གི་མཚན་ལ་མཚད་ཅིང་གསོལ་བཏབ་པའི།
(by) worshipping the realm of bliss. May this supplica-
tion,
12. | བསོད་ནམས་མཐུ་ལས་བསམ་དོན་ས་ལུས་པ།
through the power of merits, not omitting (any of these)
wishes,
13. | འབད་པ་མེད་པ་ལྷུན་གྱིས་འགྲུབ་ལྱར་ཅེག།
receive fulfilment, effortless and by itself.
14. | མངྐལ།
Maṅgalam.

TEXT AND TRANSLATION OF THE COLOPHON OF THE
Rdor-phren, pp. 18-20.

1. | ཨོཾ་སྐྱེ།
Om svasti.
2. | ཐུབ་པའི་ལེགས་བཤད་ཀུན་གྱི་མཚན་གྱི་པ།
Of the sayings of Śākya-muni those have become the most
precious,
3. | གྲུང་ལྡེ་རྒྱ་མཚོའི་དེ་ཉིད་ལེགས་རྟོགས་ནས།
which are (incorporated) in the 'Ocean of the Rgyud-sde'.¹
Having understood them thoroughly,

¹ The Rgyud-sde (pronounce: Gyud-de) forms the tantric portions of the Kangyur (Tib. *dkah-ḥgyur*), the Lamaistic canonical writings.

4. | ཐུབ་བརྟན་གསལ་མཛད་འཛིག་མ་མེད་འབྱུང་གནས་ཀྱི།
hJigs-med-hbyun-gnas¹ who made the 'Doctrine' clear
5. | བཞེད་སྲོལ་རྫོང་འབྲེང་དཀྱིལ་འཁོར་མྱང་བརྟན་འདི།
(evolved) the valuable Rdor-phren mandala. Here its
imagery
6. | བཞེད་ས་པའི་དགེ་བས་ཚུལ་འདིར་ཉེར་མཁོ་བའི།
has been drawn up, the merit of this (new) form makes it
indispensable
7. | མཐུན་ཉིན་སྐབ་པའི་ཡོན་ཀྱི་བདག་པོ་དང་།
(especially) on account of its conformity (with the original).
The author,
8. | ལྷོར་བ་གཉིས་ལྔན་བཙོ་བོར་བཅས་པ་ཀུན།
the follower and, together with the two, (also) the crafts-
men,
9. | ས་ལ་མ་ཟིམ་བཞུད་རྣམ་མཁྱེན་སྦྲུང་འཛོལ་གྲག།
may they, each one after the other, quickly receive perfect
enlightenment,
10. | གནས་སྐབས་ཙེ་རིང་ནད་མེད་བདེ་ལྔན་ཞིང་།
enjoying in this temporal existence long life, health and
happiness
11. | ཞིང་གི་མཚོག་ལ་མཚོད་ཅིང་གསོལ་བཤབ་པའི།
(by) worshipping the realm of bliss. May this supplication,
12. | བསོད་ནམས་མཐུ་ལས་བསམ་དོན་མ་ལྷས་པ།
through the power of merits, without omitting (any of
these) wishes,
13. | འབད་པ་མེད་པ་ལྷན་གྱིས་འབྱུབ་ཐུར་ཅེག།
receive fulfilment, effortless and by itself.

¹ hJigs-med-hbyun-gnas (pronounce: Jigsméd Jungnas) is the Tibetan name for the Mahāsiddha Abhayākara-gupta who lived in the 9th century A.D.

14. | མཆོག་ལོ།

Maṅgalam.

15. | ཅེས་པ་འདི་ནི་བཞུགས་སྐྱོན་ཁྲིར་བཞུགས་བཅོ་ལྔ་པར།

This (was said) to the Fifteenth to sit on the 'Throne of Praise and Prayer' (named)

16. | གང་གི་མཛོད་འཛིན་སྤྱོད་དགོན་མཚན་དང་།

Gaṅ-gi-mdzod-ḥdzin bLo-bzañ-dkon-mchog¹ and

17. | ཆེད་མང་ཕུན་ཚོགས་རྩི་ཆེ་སྐུ་སྐྱོན་བཅས།

to Chīn-wañ Phun-tshogs-rdo-rje,² (his) son and minister,

18. | རྟོ་ཡོན་སྐུ་སྐྱེ་ར་རྩྭ་བཅོམ་གྱིས།

by No-yon Sprul-sku Ratna-Badzra,³

19. | སྤྱད་འཆང་ནག་པའི་སྐུ་འཕྲུལ་བྱང་ལྟོགས་འདིར།

who came here to the north as the Illusory Body of Spyod-ḥchañ-nagpo,⁴

¹ Gaṅ-gi-mdzod-ḥdzin bLo-bzañ-dKon-mchog (pronounce: Gang-gi-dzod-dzin Lobzang Gonchok). Gaṅ-gi-mdzod-dzin is a title of the Mongol (?) Kings meaning literally translated 'Holder of' the Fulness of Ganges'. Perhaps erroneously for Gaṅ-gi-mdzod-dzin 'Holder of the Office of Guṇ', this is suggested by line 49. If the assumption is correct that bLo-bzañ-dKon-mchog was a Mongol King the phrase 'the Fifteenth' to sit on the 'Throne of Praise and Prayer' would refer to his being the 15th successor to Jingis Khan (Tib. Pog-ta-rgyal-po).

² Chīn-wañ Phun-tshogs-rdo-rje (pronounce: Ching-wang Puntsog Dorje). Chīn-wañ, a title corresponding to Crown-prince.

³ No-yon Sprul-sku Ratna-Badzra (pronounce: No-yon Trul-ku Ratna Vajra). No-yon, a Mongol title for high noblemen, a Lord. Sprul-sku, the Tibetan title given to incarnations of saints.

⁴ The Spyod-ḥchañ-nag-po (pronounce Chodchang Nagpo) referred to here is apparently Grub-chen-nag-po-spyod-pa (Skt. Kṛṣṇacārin or Kṛṣṇapāda), one of the 84 Mahāsiddhas. In both pantheons as edited by Oldenburg and Clark we find pictures of him, No. 15 in the former and No. 14 in the latter, among the succession of famous saints and divines of Mahāyāna Buddhism. Ratna Badzra is here spoken of as the 4th incarnation of Spyod-ḥchañ-nag-po. In line 32 a further reference occurs to him where he is referred to by his title rJe-btsun-dam-pa. This establishes him to be one of the Grand-Lamas of Urga, who held that title, and of whom he was the third. Waddell in his 'Lamaism', p. 281, speaks of the Grand-Lamas of Urga as incarnations of Tārānatha, whilst this reference indicates that they were regarded as incarnations of Spyod-ḥchañ-nag-po.

20. | ཚན་པའི་སྐུ་འབྲེང་བཞི་པར་གསལ་བཤབ་པས། |
(being) the fourth in the line of (his) incarnations. (By)
this prayer
21. | དང་པའི་མངམ་རྒྱལ་དཀྱིལ་འཁོར་ཆེན་པོའི་ནང་། |
into the great orbit of the Supreme Buddha
22. | སྐལ་ལྷན་འགྲོ་ནམས་བཅུག་ཏེ་ཕྱིས་པ་ལྟར། |
fortunate beings were drawn, like children.
23. | འཇུག་པའི་དབང་དང་གོང་མ་གོང་ཆེན་གྱི། |
(Invested with) the 'Power of Entry' and the 'Power of
the Highest Emperor'
24. | དབང་དང་རྩྭ་རྒྱ་སྤྱོད་དཔོན་ཆེན་པོའི་དབང་། |
and the 'Power of the Great Eternal Teacher',¹
25. | ལྷ་ལ་སྐབས་གོང་གསལ་བྱིན་བདག་རྣམས་ཀྱིས་མཚོན། |
after receiving (these powers), (and) guided by (their)
illustrious patrons
26. | མཁན་ཆེན་ཨི་ལ་ཤོག་མང་ནི་མིན་ཏན། |
the two mKhan-chen Ī-la-kog-saṅ (and) No-min-han²
27. | གཉིས་དང་ཏུ་བླ་གསལ་མགྲོན་དགེ་བསྐྱེས་པ། |
jointly with the Tah-bLa³ created (this method of) meri-
torious invocation.
28. | དབུ་མཛད་ལ་སོགས་ལས་རྩན་པ་རྣམས་དང་། |
The bBu-mdzad,⁴ the other officials and

¹ The three 'Powers', mentioned in this and the preceding line, I take to mean: the 'Power of Entry' = ordination, the 'Power of the Highest Emperor' = the consent of the ruler and the 'Power of the Great Eternal Teacher' = the consent of the church.

² mKhan-chen is the title for abbots of big monasteries or other high ecclesiastical dignitaries.

³ Tah-bLa abbreviation for Tah-bla-ma, the Mongol title given to the Grand-Lamas of the Gelugpa sect, better known as Dalai-Lamas.

⁴ dBu-mdzad (pronounce Um-dzad), the title for the head-lama of a monastery who is also the main office-bearer, and who arranges the everyday affairs of the fraternity.

29. |པད་ལི་གུང་དང་ཇ་སག་ཐམ་ཇེ་ལྷམ།
Pad-li-guñ and his wife Dza-sag-thas-ji,¹
30. |སྒོན་པོ་ལ་སྐག་ས་མེར་སྒྱུ་བརྒྱ་པག་ལ།
their minister and a hundred other lamas and laymen,
31. |དབང་བཞི་སྐུ་ལ་སྐབས་འགྲོ་བའི་འདྲན་པ་མཆོག།
having received the four consecrations, (made) salvation
of beings (their) highest (object).
32. |རྒྱལ་དབང་ཡབ་སྐུ་ཇེ་བཙུན་དམ་པ་སྐག་ས།
The rulers, father and son, Rje-btsun-dam-pa² and the
others,
33. |བརྟན་འཛོན་སྒྱུ་ས་བྱ་ཡུན་རིང་ཞབས་བརྟན་དུ།
were born as followers of the Faith (and) since a long time
(had been) firmly rooted (in its precepts).
34. |འགྲོ་ཁུན་ཇོག་ས་བྱང་ཐོབ་ཕྱིར་རིན་འབྱུང་དང་།
In order that (all) beings might obtain Bodhisattvahood,
for the Rin-hbyun,
35. |སྐར་ཐང་བརྒྱ་རྩ་རྩོར་འབྲེང་དགྱིལ་འཁོར་གྱི།
the Snar-than-brgya-rtsa and the Rdor-phren maṇḍala
36. |པར་བཀོད་ཕྱིར་དུ་གསལ་བ་བཏབ་པའི་ཆོ།
when request had been made that blocks should be cut
37. |གསུང་གི་གནང་བ་ཐོབ་ནས་ཇི་དམ་པ།
sanction was received. In charge of the work (was put)
38. |ཆོས་ཇེ་མཁས་གྲུབ་དག་སྤང་ཆོ་རིང་དང་།
Chos-rje mKhas-grub dGe-slon 'Tshe-rin³ and

¹ Pad-li-guñ would seem to be the name for the local chieftain, on whom and whose people would fall the task of providing for the lamas engaged on the making of this book. According to Mongol usage the name of his wife is also mentioned.

² The rulers, father and son, are the above-mentioned bLo-bzañ dkon-mchog and Phun-tshogs-rdo-rje. The rJe-btsun-dampa refers to Ratna-Badzra, also mentioned above.

³ Chos-rje, a title for high ecclesiastical dignitaries, according to Waddell it corresponds to Vicar-General. mKhas-grub, an academic title corresponding to our Doctorate. dGe-slon, the title given to a lama after full ordination into the higher orders.

39. | མ་དགེ་འདི་མི་སྒྲིབ་བཟང་བྱིན་པ་དང་།
the drawings were made by bLo-bzañ-sbyin-pa¹ and
40. | སྒྲིབ་བཟང་བཀྲ་ཤིས་ངག་དབང་ཤིས་རབ་དང་།
bLo-bzañ-bkra-śis-ñag-dbañ-śes-rab² and
41. | སྒྲིབ་བཟང་ཚམ་དར་སྒྲིབ་བཟང་ཚེ་དཔག་དང་།
bLo-bzañ-chos-dar³ (and) bLo-bzañ-tshe-dpag⁴ and
42. | ལར་བཞོད་ཟེད་མི་ཡིན་ཏེན་ཐོན་ཆ་རིང་།
the wood-blocks were cut by Ēr-ten-thon-Tshe-riñ,⁵
43. | བཀྲ་ཤིས་དགེ་སྒྲིབ་ཚམ་རབ་ཚམ་འབྱོར་མོགས།
bKra-śis-dge-sloñ, Chos-rab-chos-ḥbyor and others.⁶
44. | བྱིན་བདག་བཅོ་ཅོ་མོགས་ཀྱིས་ལས་གྲུབ་ཆ་།
When the authors, craftsmen and others had completed
the work
45. | དང་སྒྲིབ་སྒྲིབ་དབང་ལྷག་པ་ལྷགས་མངགས་མི་ཡན་ལང་།
Am-pan Wañ⁷ gave the order for (its) consecration
ceremony.

¹ bLo-bzañ-sbyin-pa (pronounce: Lobzang Jinpa).

² bLo-bzañ-bkra-śis-ñag-dbañ-śes-rab (pronounce: Lobzang Trashi Ngagwang Sherab). Although this may be the name of one artist only, the possibility exists that it refers to two men, the name of the first would be bLo-bzañ-bkra-śis and the second Ñag-dbañ-śes-rab. In that case the total number of artists employed would be 5 instead of 4.

³ bLo-bzañ-chos-dar (pronounce: Lobzang Chosdar).

⁴ bLo-bzañ-tshe-dpag (pronounce: Lobzang Tsepag).

⁵ Ēr-ten-thon-tshe-riñ (pronounce: Er-ten-ton Tse-ring). This name is half Mongolian: Er-ten-thon and half Tibetan: tshe-riñ.

⁶ bKra-śis-dge-sloñ (pronounce: Trashi Gelong) and Chos-rab-chos-ḥbyor (pronounce Chosrab Chosjor).

⁷ Am-pan Wañ (pronounce: Amban Wang). Wang was probably the Chinese ambassador at the court of the Grand-Lama Ratna-Badza and was of the rank of an Amban. Such a Chinese ambassador always resided at the court of the Urga Grand-Lamas according to Grünwedel. The consecration ceremony referred to in this line is regarded in Lamaism as indispensable for any sacred object, i.e. a new monastery, a new idol or a new book. It 'imbues it with life' and only after receiving this consecration it becomes an object of worship. This book was deemed important enough to apply for the consent of the Emperor of China whom the Amban represented.

46. | ཐུ་རུན་ཨེ་ཕུག་ལུང་དུང་རྫོང་དང་།
 Thu-run E-phug Luñ-druñ-rdo-rje¹ and
47. | མཁན་ཆེན་ཅན་ཆུབ་རྫོང་རྫོང་མིན་ནན།
 mKhan-chen Byañ-chub-Rdo-rje No-inin-han²
48. | ཨེ་ར་ཏེ་ནི་སེ་ཤེན་ཏེ་ཨ་ཕ་ལྷ་མོ་སྐྱོང་།
 (and) Er-te-ni-se Tshen-tah³ performed it.
49. | མགོན་པོ་ལྷ་བས་དང་གུང་དང་ཆ་སྐྱོང་།
 'By the help of the Lord (Buddha) and the Ruler⁴ and
 the Dalai-Lama
50. | སོགས་ནས་བཞུག་འགྲོ་ཡན་པ་གུ་ཆེན་པོ།
 and others, may the Doctrine become an unsurpassed
 blessing to (every) being,
51. | འབྲུང་ཆེད་པར་བྱང་སྤོན་ཆེག་འདི་ལྷ་བྱ།
 by spreading enlightenment.' That such a benediction
52. | དགོས་ཞེས་བསྐུལ་ངོར་སྤོ་བཟང་དཔལ་ལྷན་པའི།
 is necessary (is) an admonition from the mouth of bLo-
 bzañ-dpal-ldan-pai
53. | བཞུག་པའི་རྟེན་མཛུགས་ལས་ནས་ལྷུ་ལྷུ་སྤྱིས།
 bstan-pai-ñi-ma-hphyogs-las-rnam-rgyal.⁵

¹ Thu-run-E-phug-Luñ-druñ-rdo-rje (pronounce: Tu-run E-pug Lung-drung Dorje). Thu-run is a Mongolian title, apparently, E-phug the name of a big monastery in Northern Tibet which is often mentioned in historical and geographical works, Luñ-druñ-rdo-rje is probably the name of its abbot.

² mKhan-chen Byañ-chub-rdo-rje No-min-han (pronounce: Khanchen Jangchub Dorje No-min-han). This seems to be the same mKhan-chen No-min-han mentioned in line 26, as one of the authors of this work.

³ Er-te-ni-se Tshen-tah (pronounce: Er-te-ni-se Tseng-tau). Both the title and the name are Mongolian, the latter perhaps Chinese. Perhaps the abbot of Kumbum monastery whose Mongolian name is T'a-erh-sen according to Rockhill.

⁴ The word 'guñ' I have here translated with 'Ruler'. The meaning of the sentence seems to be: By the help of the Lord (Buddha) and the Ruler (representing the temporal power), and the Dalai-Lama (representing the spiritual power), etc.

⁵ bLo-bzañ-dpal-ldan-pai-ñi-ma-hphyogs-las-rnam-rgyal (pronounce: Lobzang Paldanpe Nyima Choglas Namgyal).

'Lobzang, the Illustrious, Sun of the Doctrine, Conqueror in All Directions' an eulogical title for Tson-kapa, the great reformer, and founder of the Gelugpa sect. Its lamas are distinguished by wearing yellow hats from the orthodox sects who wear red hats.

54. |བཀོད་པའི་དགེ་བས་ལྷ་མེད་ཤིང་ལྷགས་ཅེ།

May, through the merit he has wrought, the great 'Sect
of the Yellow Hats'

55. |ཕྱགས་དུས་ཀྱན་ཏུ་དར་ཞིང་རྒྱས་ཐུང་ཅིག།

spread and increase in (all) directions and at (all) times.

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ཐུབ་པ་དཔལ་ཤིག་གསུམ་བུ་

Tub-pa-dam-tshig-gsum-bkod
Trisamayayuhamuni



ཐུབ་པ་ར་དོ་རྟེ་གདུང་པ་གེ་སོ་ཁྱེ་གསུམ་

Tub-pa-rdo-rje-gdan-pa-gso-
Vajrasanamuni with two attendants



རྟོ་རྟེ་སུམ་དཔལ་ཤིག་པོ་

rDo-rje-soms-dpal-ser-po
Yellow Bodhisattva

རྟོ་རྟེ་སུམ་

པོ་

Rin-hbyun. Folio 7



ཐུབ་པ་ར་དཔལ་ཤིག་པོ་

Bha-ra-dhya-dza-gser-can
(Sthavira) Kanakabharadvāja



གསེར་པོ་

gSer-behu
(Sthavira) Kanakavatsa



བྲ་པོ་

bZan-po
(Sthavira) Bhadra

རྟོ་རྟེ་སུམ་

པོ་

Rin-hbyun. Folio 38

Rin-hbyun. Folio 57



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

sPan-ras-gzigs-sems-ñid-nal-gso
Avalokitesvaracittaviśāraṇa



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

sPan-ras-gzigs-yid-hñin-nor-bu-lha-lha
The Five Gods of Avalokitesvara-
Cintāmaṇi



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

sPan-ras-gzigs-sems-ñid-nal-gso
Avalokitesvaracittaviśāraṇa

རྒྱུ་ལྟར་

ལོ་རྒྱུད་



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

Phyag-rdor-hbyun-po-hdul-byed-gsar-ma
New Vajrapāṇihūṭāḍāmara



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

Phyag-rdor-hbyun-po-hdul-byed
Vajrapāṇihūṭāḍāmara



ཐུག་རང་གི་ཡུལ་ལོ་རྒྱུད་ལྟར་བཤམས་

Phyag-rdor-khañ-brtsigs
Vajrapāṇikūṭāgāra

རྒྱུ་ལྟར་

ལོ་རྒྱུད་

Rin-hbyun. Folio 71. Reverse

Rin-hbyun. Folio 90

ཡེ་ཤུ་འཕྲུལ་གྱི་མཁའ་འཁོར་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་

Dhāraṇī For
 ḥKhor Las-kyi-mkha-hgro-ma
 Karmaḍākini anucara

ཡེ་ཤུ་འཕྲུལ་གྱི་མཁའ་འཁོར་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་

Dhāraṇī For
 dPal-mo-sñin-gi-gser-thig-can
 Śrigarbhāsuvarṇasūtra

ཡེ་ཤུ་འཕྲུལ་གྱི་མཁའ་འཁོར་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 རྒྱལ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་

Dhāraṇī For
 Nor-rgyun-ma-dmar-mo
 Red Vasudhārā



གཤམ་པོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 gTaug-tor-mam-rgyal-phyag-gñis-ma
 Two handed Uṣṇāvijayā



ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་
 Lha-mo-tsunda-dkar-mo
 White Cundā Devi



མཁའ་འཁོར་ལྷ་མོ་ལྷ་མོ་
 Khro-bo-gzan-gyas-mi-thub-pa
 Krodhāpa-Ṣiṭṭa

ཡེ་ཤུ་

ཡེ་ཤུ་

ཡེ་ཤུ་

ཡེ་ཤུ་

Rin-hbyun. Folio 128. Compare with original on Plate 8

Rin-hbyun. Folio 140



མགོན་པོ་འཕྲུག་པ་ལྟེན་པའི་ལྷགས་
mGon-po-trakšad-dvags pohi-ngs
Mahākālaraudrāntaka
according to Dvags-po (Lo-tsa-h-ba)



མགོ་བོ་ཤི་ཏུ་ཡུང་གཏེ་ས་ཡུལ་ས་
mGon-po-trakad-gños-lugs
Mahākālaraudrāntaka
according to gÑos (Lo-tsañ-ba)



འཇགས་པདྒམ་ཡོན་པོ་ལྷོ་རི་ཡ་རྒྱལ་ཁབ་

विष्णुः १२५



ཐུབ་མེད་ཅན་
sPyan-mi-bzan
Virūpākṣa



Virūdhaka
Phags-skyes-po



ཡུལ་ལྗོངས་བསྐྱེད་སྤྱོད་
Yul-lkhor-bbruñ
Dhrtarästra

ବିଦ୍ୟାପୁର ସକ୍ରୁ ସନ୍ନିପତ୍ତ

Rin-hbyuñ. Folio 142

rDor-phreñ. Folio 11 —



gTad-dkar-hgro-bzañ-ma
Cod-paṅ-ngrin-bzañ-ma



bKra-sis-tshe-rin-ma
Maṅgaladīrghāyus



Mi-gyo-glañ-bzañ-ma
mThūn-gi-ñal-bzañ-ma

རྩེ་འབྲུང་ བརྒྱུ་ རྒྱུ་མཁོ་ ༨༥༥



rDo-rje-huñ-mdzad
Vajrahūmkāra



rDo-rje-bdud-rsi
Vajrāmṛta



Don-yod-grub-pa
Amoghāsiddhi

རྩེ་འབྲུང་ བརྒྱུ་མཁོ་

Kin-hbyu? Folio 73. Original

Obverse

Reverse



Text in vertical columns to the right of the illustration.



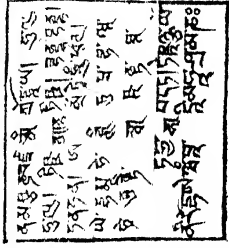
Text in vertical columns to the right of the illustration.



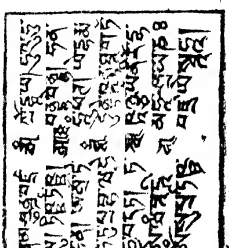
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Text at the bottom of the obverse page.

Text in vertical columns at the top of the reverse page.



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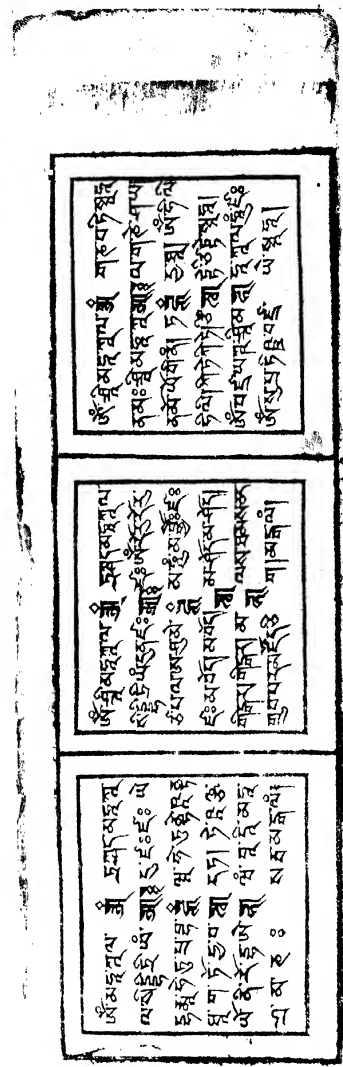
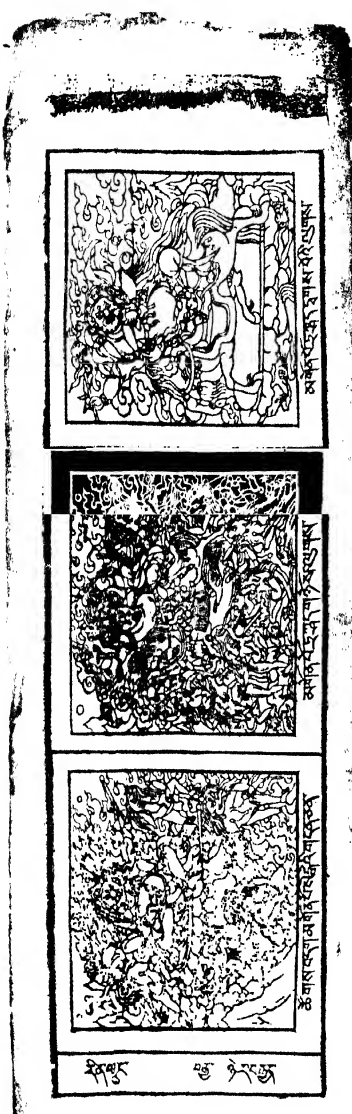


Text in vertical columns to the right of the illustration.

Rin-hyūn. Folio 128. Original. Compare with tracing on Plate 5

Obverse

Reverse



**Traces of a Matriarchal Civilization among the
Kolli Malaiyālis.¹**

By O. R. BARON EHRENFELS.

(Communicated by Dr. B. S. Guha.)

1. INTRODUCTION.

The Kolli Malaiyālis are the less Hinduized, Christianized and least disintegrated sub-caste of the tripartite tribe of the Malaiyālis in the Salem District, all of whom inhabit hilly areas which may rightly be considered as back-waters, seen from the point of view of cultural history.

The present culture of the Malaiyālis differs in several points from that of the surrounding agricultural classes in the plains, and these differences, especially in the form in which they have been preserved as living survivals among the Kolli Malaiyālis, gave rise to the theory of their culture-historic interrelation with the matriarchal centre of South-West India (Malabar).

F. J. Richards, in his excellent descriptions of the Malaiyālis, stresses the six following points in connection with the particular problem of the Kolli Malaiyālis:—

- (1) The fore-lock (*mun-kudumi*) is worn by Kolli Malaiyāli boys and girls before puberty, reminiscent of the hair-dress common among the West Coast Hindus.
- (2) Kolli Malaiyāli women wear cloths of white colour only, tied across the breast and under the armpits, never over the shoulder, reminding one of the original dress worn (see Plate 9, Figs. 3, 4; Plate 10; Plate 11, Figs. 1, 2; and Plate 13, Fig. 1) by Malabarais who formerly left their breast free.
- (3) Beneath this, they are used to wearing a short loin-cloth about $1\frac{1}{2}$ by $\frac{3}{4}$ of a yard, bearing a striking resemblance to that worn by the girls of Malabar.
- (4) Tattooing, though practiced among the two other groups, is strictly prohibited among the Kolli Malaiyālis. It is also practically unknown in Malabar.
- (5) Menstruation pollutes Kolli Malaiyāli girls on attainment of puberty for 30 days (?), 'a period longer than any recognized in the plains, but by no means uncommon in Malabar'.²

¹ Published with permission from the Government of Madras.

² F. J. Richards, I.C.S.: *Madras District Gazetteers. Salem. Madras*, 1918, pp. 156 seq.

- (6) A 'big boss-shaped hollow cylinder of gold or gilt from an inch to an inch-and-a-half or more in diameter'¹ is an ear-ornament worn by the Kolli Malaiyāli girls and resembles the *toda* often worn by Nayar women. Richards in this connection says:—

'Though the traditions of the Malaiyālis trace their origin to Conjeevaram, their customs point to Malabar, and it has been conjectured that they migrated from the ancient kingdom of Kerala. Kalrayan inscriptions (Vol. II, p. 300) throw no light on the subject. It is possible, however, that certain Malaiyāli customs are survivals of a state of civilization which at one time was common to both the East and West of the Indian Peninsula, and which is now confined to the Malabar Coast.'²

This latter suggestion corresponds with one of the main results to which I arrived in my culture-historic analysis of the matriarchal civilizations of India.³ It appeared to me in the course of these studies that we have to differentiate between at least three strata of matriarchal culture in India. The first one consisting of two sub-groups of primitive jungle-cultivators, mainly using the digging stick in their method of *jhuming* or shifting cultivation, appears definitely inferior in respects of economy and technology, compared to the middle group which, roughly speaking, corresponded to a late neolithic village civilization, anterior to the general patriarchalization of South India. This middle group seems to have been connected with the north-eastern type of Indian mother-right civilization, surviving nowadays among the Khasis and Garos of Assam, whence this group of matriarchal people must once have migrated to India, before the advent of totemist hunters. The latter seem to have absorbed the matriarchal system of society into their patriarchal one and thus to have divided the south-western from the north-eastern group of matriarchal culture.⁴ A third group of an altogether different and in every respect far more advanced matriarchal civilization—that of the Nayers in South-West India—does not seem to have ever extended beyond the Western Ghats towards the east coast of South India, but to have had its centre in the ancient city civilization of the Indus valley which must have been at its best during the fourth and third millennium B.C.⁵ From there it might have established

¹ Vide *Malabar District Gazetteer*, p. 145; F. J. Richards, *op. cit.*, p. 157.

² *Ibid.*, p. 156.

³ O. R. Ehrenfels: *Mother-right in India*, published by Oxford University Press, Hyderabad, 1941.

⁴ Ehrenfels, *op. cit.*, pp. 75, 100, 175.

⁵ Sir John Marshall: *The Indus Civilization*, London, 1931; Ernest Mackey: *Further Excavations at Mohanjo-Daro*, Delhi, 1938; Rao Bahadur

a colonial branch or other daughter-civilization at the coast of Kerala, the modern Malabar.¹

The existence of living survivals of what seems to have been a matriarchal civilization, on the eastern side of the Western Ghats in South India, therefore appears to be of great concern to these theories; opposing them if these survivals turned out to pointing to a highly advanced city civilization of the Mohanjo-Daro or Harappa pattern, supporting them on the other hand, if belonging to the agricultural middle type of matriarchal civilization, roughly corresponding to neolithic villages, or a still less advanced cultural layer. The study of matriarchal traces in the cultural life of the Kolli Malayālis therefore promised interesting results in respect of the problems of Indian ethnology in general and that of South India in particular, which is so deeply interwoven with the ancient matriarchal civilization of this country.

Apart from these results, however, two side-issues presented themselves in the course of my ethnographic work among the Kolli Malayālis, to which reference will also be made in the following short report:—

- (a) The picture of South Indian peasantry, shown by the Kolli Malayālis, may rightly be considered as representative of the sort of economic, social and religious conditions which must have prevailed among the agricultural classes of South India even till long after the patriarchalization of her eastern part, that is during the long flourishing epoch of historic Tamil literature in Tamil kingdoms from about the third century B.C. until the final downfall of the 'Later Pallavas' some time in the eighth century A.D.²
- (b) The functional working of the slow and very often subconscious process of patriarchalization of a society which, in South India, took place in a way, very much differing from that in the North, owing to different historical and geographical circumstances, may be imagined as not altogether dissimilar to the present process of slow disintegration and decay in the peculiar Kolli Malayāli civilization, which I had occasion to observe—and to deplore!—during my studies among these lovable people. My observations, connected with these problems, will therefore be given room in the

K. N. Dikshit: *The Prehistoric Civilization of the Indus Valley*, Madras, 1939.

¹ Ehrenfels, *op. cit.*, pp. 179–184 *seq.*

² H. G. Rawlinson: *India*, London, 1937, pp. 176, 178 *seq.* and Richards, *op. cit.*, pp. 45 *seq.* and footnote 2 on p. 48.

following notes on matriarchal traces in the Kolli Malaiyāli life, as a contribution to the knowledge of the functional working of such changes.

A complete picture of the Kolli Malaiyāli's life is not aimed at here; among other reasons on the simple ground that in F. J. Richard's afore-quoted *Salem District Gazetteer*, a most valuable study on the general ethnography of the entire Malaiyāli tribe has already been published.

2. HISTORIC AND GEOGRAPHIC ENVIRONMENT.

All three sub-castes of the Malaiyāli tribe inhabit the *Talaghāt* hills of the Salem and the adjacent Trichinopoly Districts, roughly speaking between 11° and 12° North Latitude and between 77° and 78° East Longitude. 'Geographically the Talaghāt belongs to the ancient *Kongu country* which comprises most of what is now Coimbatore District, together with the taluks of Karur, Namakkal, Salem, Tiruchengōdu and Ōmalūr. Its history is dependent on that of the *Chola country* (Trichinopoly and Tanjore) and in a less degree on that of the western districts of the present State of Mysore.'¹ This is of importance to us, as the seclusion from the outside world, the spirit of simple-minded independence and—in the eyes of the average Tamilians of the plains—the backwardness of the Kongu people is proverbial even to the extent of being used in modern Tamil-slang as an expression signifying very much the same as 'Spaniard' means in colloquial French, 'Nemec' to the Russian or 'Schwab' among the Hungarians. We may thus hope to find some survivals of a civilization among these Kongu people which appears to be otherwise extinct in the Tamil-speaking parts of present South India.

The Salem District, on the other hand, 'wedged between the Deccan and the plains, . . . has owned allegiance in turn to Pallava, Chōla and Pāndya, to Manyakheta, Dorasamudra and Vijayanagar. Ruled at one time by the Viceroy of a distant Emperor, at another by his feudatory vassals, placed on the highway of conquering and vanquished armies; plundered again and again by Pathan and Marātha freebooters and by local adventurers, ever ready to profit by the weakness of a suzerain, fought over by Madura Nayak and Mysore Odeyār, by Hyder Ali and "John Company"; too poor to support a capital, a dynasty or an army of its own, and too important strategically to be left in peace by a powerful neighbour, (Salem District) has had a troubled past'.² We may therefore rightly expect to find in the plains of this area vestiges of many a foreign invasion and more or less transitory conquests of the recent past, thus making them

¹ Richards, *op. cit.*, p. 44.

² *Ibid.*, p. 45.

less interesting to the investigation of cultural history, whereas the hills of this part of the ancient Kongu country must have preserved some such single elements of ancient civilization, so as to enable us to reconstruct their fuller picture by means of comparative study. And indeed it is here in these hills that we find the three sub-tribes of the Malaiyālis; i.e. the Pēriya Malaiyālis chiefly in the Shevroy and Kalrāyan hills in the north, and the Pachai and Kolli Malaiyālis in the Pachai and Kolli hills in the south of the Salem District.

Of these, the Kolli Malaiyālis are not only the most interesting ones, seen from the view-point of comparative ethnology (as has been already mentioned in the introduction to these notes), but they also seem to be the least disintegrated part of the whole tribe. The Pēriya Malaiyālis in particular, who otherwise appear to me more vividly connected with a prehistoric *megalithic civilization*, are now in a stage of complete economic and cultural defection, owing to the presence of flourishing coffee-plantation in their hills, which offer them, on the one side, a comparatively easy way of earning their 'daily ragi' (bread being unknown!) but seducing them into neglecting their own fields and forgetting their own agricultural methods. Through contact with low-caste peoples from the plains, working as coolies on the coffee estates, and with the more often than not Christianized servants of rich planters, the Pēriya Malaiyālis came to feel ashamed and to finally abandon their own old customs, as well as their conceptions of right and wrong; this the more so as many of the original Malaiyāli ways of life are in opposition equally to high- and low-caste Hindu, to Christianized Indian as well as European patriarchal laws, as we shall later have the opportunity to observe.

The Kolli Malaiyālis, on the other hand, inhabit hills which are not open to large-scale coffee-plantation. With an average height of about 4,000' above sea-level, these hills are rather exposed to malarial infections and, abruptly rising on the south, east and west from the plains with an average of 800' to 900' only, they are not too frequently visited by foreigners, and can still be said, therefore, to be a more or less secluded territory even nowadays, motor-roads being not yet introduced. In fact, when I was preparing my tour to the Kolli hills, the boy whom I intended to take with me from Yercaud showed reluctance to follow me, as, according to local belief in that Europeanized place of rich planters, the Kolli hills were a dangerous country, an abode of evil spirits, death and destruction, where formidable murderers and men-slaughterers were living. How far these ideas correspond with truth, this our later following description of the Kolli Malaiyālis and their character will have to show. . .

The Kolli hills themselves, according to Richards, 'form a fine hill mass, measuring some 18 miles from north to south by 12 miles from east to west, situated half in Nāmakkal and

half in Attur'.¹ The Nāmakkal portion is on high level, characterized by basin-shaped depressions where in the midst of terraced dry land (*punjai*), rich rice cultivation flourishes on wet land (*nanjai*). Grazing ground of an usually fresh, green colour, even at the end of the hot season in May and June, is not scarce and interchanges with a beautiful type of rich jungle, which however, though of a tropical character, has become barren of any bigger game, with the sole exceptions of bears and a few panthers perhaps, doing little harm to the cattle of the Malaiyālis though they may take, occasionally, a stray goat or sheep. Wild boar too seems to have become very rare, owing to the Malaiyālis' regular hunting expeditions with the use of nets, leaving practically no living space to any 'wild animals' in the jungle.

3. ECONOMY AND DAILY LIFE.

The economy of the Kolli Malaiyālis is mainly based on agriculture, both of the *nanjai* or wet land (see Plate 12, Fig. 1) type with rice cultivation, and that of *punjai* or dry land (Plate 9, Fig. 1), where small grains such as *rāgi*, *samai*, *tenai*, *kambu*, *chulam*, beans and pulses are being grown. The cultivation of tree fruits is much less important, though it seems that it could be very much increased. Cattle play an integral rôle as ploughing animals, but a very inferior one as milk producers, though the price of milk is comparatively high in the hills. (About one anna for a quantity less than half a bottle!) The quality of cattle is very poor, as no selection is being made in the upbringing of calves, owing to the reluctance against killing of any cattle which, by the way, has been described to me by Kolli Malaiyālis themselves as a 'mere custom'; not as a genuinely felt outcome of religious veneration, nor even of respect for the cow. The prohibition of killing cattle may, therefore, be taken as one instance of acculturation from Brahmin Hinduism to which, most probably, the entire complex of breeding cattle too has to be ascribed. Horse-keeping as well as that of donkeys is not practiced, with the reason being explained that they do not stand the 'climate' of the hills, which is almost certainly not the case in reality. The Kolli Malaiyālis, on the other hand, may not be used to taking care appropriately of these animals. Black pigs (Plate 10, Fig. 4) roam freely in the village in a sort of way as the half-domesticated dogs do. Still they occasionally get some *cunjee*-soup from their owners, in addition to the diet which they manage to collect in the village streets and surrounding empty spaces. They would be slaughtered and eaten at rare occasions only, such as visits of guests, or banquets, given after funerals to the relatives by the chief mourners. Fowls are kept

¹ Richards, *op. cit.*, p. 19.

for the use of their eggs and meat, though I found it difficult to obtain the former in sufficient quantities. Fowls are much used for minor sacrifices to the village deities, the *ammas* or *Divine Mothers*. Dogs are very numerous; cats, of a greyish, pretty colour in stripe-pattern, unusual in the plains, are found, though rarely, in the Kolli Malaiyāli villages.

The differences between rich (Plate 9, Figs. 3, 4; Plate 11, Figs. 1, 3) and poor (Plate 11, Figs. 2, 4), within this general frame of an advanced stage of ploughing agriculture, are usually insignificant. The average Kolli Malaiyāli possesses about five to six acres of ground, of which two acres may be fit for rice cultivation. This *nanjai* or wet land is valued at about Rs.100 to 150 per acre, whereas *punjai*, i.e. dry land, would be estimated at about Rs.50 to 80, according to quality and situation. Plantain, lime, and jackfruit trees will grow and yield their rich harvest wherever the owner of the ground cares to select a suitable spot between houses, fields and waysides, and takes the trouble of 'cultivating' them. Similarly, small coffee gardens are sometimes laid out. But curiously enough, the healthy and much-needed addition of fruits and fresh vegetables to the dry grain-diet of the Malaiyālis, which these trees or easily cultivatable vegetable gardens would offer practically without any extra expenses, is not taken advantage of by the Kolli Malaiyālis, who would send all available fruits to the plains for sale, thus accumulating cash to buy jewellery with, of which both the male and female sex among them are so very fond.

In addition to this arable ground, the ordinary Kolli Malaiyāli would own half a dozen cattle or more, of which usually two pairs are used for ploughing, whereas the rest is supposed to give milk; an expectation which, however, seems to be fulfilled very casually only. The incongruous way of training the male cattle for ploughing and that of treating the milking cows adds further proof to our afore-mentioned contention of a comparatively recent introduction of cattle-keeping among the Malaiyālis, who previously seem to have tilled their fields with the hoe only, remnants of the digging-stick cultivation, however, being also traceable, especially among the Periya Malaiyālis, though in a degenerated and by no means clearly surviving way in which they occasionally use this instrument.

The average economic process of an ordinary Kolli Malaiyāli household may thus be summed up. The capital consists of *nanjai* (wet land) (Plate 12, Fig. 1) worth perhaps Rs.200 to 300, and *punjai* (dry land) (Plate 9, Fig. 1) worth approximately Rs.150 to 250, cattle worth perhaps Rs.200 or Rs.250, a house, a share in a grain-store, one or two simple ploughs, a few hoes, a stone-mortar (for the making of which the mason from the plains would receive Rs.7 in cash or kind), and one or two iron-bound pestles, a few earthenware pots for cooking and water-carrying, sometimes a few copper, a number of simple wooden

vessels, tools and spoons, as well as clothes and ornaments in varying quantities.

The income derived from this capital may be estimated at Rs.200 per year, inclusive of all food-stuff and housebuilding or housemending material, which is being consumed within the family. From this amount, therefore, a sum of about Rs.40 only would usually be derived in cash, although this latter item varies considerably according to the care taken in tree-cultivation and transportation of fruits to the plains. From the yearly cash-income about Rs.6 to 10 will be spent on the payment of revenue duties, about Rs.12 or Rs.15 for salt, gingelly oil, kerosene oil, matches, betel nuts and tobacco (of which both, Kolli Malaiyāli men and women, seem to be equally fond), and about Rs.5 or so on clothing. The rest of the cash-income seems invariably to be invested in ornaments of gold, silver and gilt, of which also men wear quite a lot, often worth as much as Rs.15 to 20, whereas women have sometimes jewellery worth Rs.300 to 500 on them.

There are few Kolli Malaiyālis, perhaps five in a hundred, who are poorer than the average, depicted above, who do not possess any ground of their own and consequently work for richer neighbours, being paid chiefly in kind and some cash for their clothing. A number of them, chiefly young men, but occasionally also married women, go nowadays as plantation-coolies on a five- or ten-year contract to Singapore and Ceylon. Although economically quite successful, these coolies bring back with them, besides some savings, too often also the contagion of Syphilis or less often Gonorrhoea and, above all, the disintegrating effect of a not fully assimilated foreign proletarian mentality which badly fits into the simple-minded but independent atmosphere in which the free people of the Kolli hills used to live.

The exceptionally 'rich' Kolli Malaiyālis (Plate 11, Fig. 1), at whose houses some of the poorer find employment, are scarcely exceeding a percentage of five on the average, just as that of the landless ones. It is a remarkable characteristic that of these richer people, who may own as much as 20 to 40 acres of ground, so far as I found, only three have left their traditional Kolli Malaiyāli way of dwelling in low huts (Plate 9, Fig. 2 and Plate 10, Fig. 3), and built bigger houses with entrance doors through which a man can pass erect, flanked by two wooden columns after the plains' fashion, and leading into three separate rooms, furnished with almirahs and cots.

But even these few among the 5% of 'rich' Kolli Malaiyālis would stick to the same food and the same daily routine, as does the rest of the tribe.

At about 6 A.M. they rise and begin the day with an elaborate cleaning of the teeth, using for this purpose the second and third finger of the right hand. No particular washing of the body or even the face is otherwise in vogue. Once I observed

two children of about six or seven years, a girl and a boy, who had worked all day in the mud of the rice-fields. Feet, arms and legs up to the hips were elaborately cleaned in somewhat clearer water, even the small loin-cloths changed and the dirty ones washed. But face, chest, shoulders and back, which too had got a drop of mud here and there, had not been touched with the little cleaning fingers, although it was pretty hot that day and one should have thought that a full bath would have been not only a wholesome, but also a delightfully refreshing, thing.

Besides an occasional *namaskaram* to the sun, no daily *pūja* or morning prayer is either customary. The men go immediately after tooth-cleaning to their work in the fields, whereas the women usually stay at home for some more time and clean the house, bring water in pots and prepare a little *cunjee* with salt to be boiled on the fire, unless some particularly urgent field-work would keep them from doing so and leave the domestic morning duties entirely to the children of the house.

This morning-*cunjee*, after its preparation either by the children or, more usually, by the women of the house, would be brought to those family members who are meanwhile working in the fields, some time between 7-30 and 8 A.M. After this, the women (or children) would return, eat their breakfast-*cunjee* themselves, and prepare the midday meals, consisting chiefly of some *ragi-kalli* or another simple, porridge-like dish, such as can be prepared from *samai*, mixed with a little *culumbu* or 'vegetable curry', rice being rarely used for every-day meals. This second meal is usually taken between 11 and 12 A.M. inside the house and commonly by all family members at the same time. Each of them has a separate plantain leaf plate or, sometimes, a copper vessel to eat from. The peculiar custom, so widely spread among other caste Hindus, which makes the women of a family wait for their meals until the menfolk have completed theirs, is unknown among the Kolli Malaiyālis.

By 1 P.M. both, women and men, would usually go to field-work, without any previous *siesta* after their meals, and work there together until 5 P.M. The division of labour between men and women in the fields does not suggest any rigid system, nor a despising characterization of a particular function as a 'mere women's work' (Plate 10, Figs. 1, 2). Also the reverse case, i.e. privileges, reserving for men special kinds of work only, has not been encountered by me, although it is true that the ploughing oxen are usually guided by men and even by small boys, rather than by women. Both sexes seem to be engaged cheerfully and hardworkingly in their task, so long as they are in the fields, whereas the work at home appears to be executed in a more casual playing about sort of manner, as though it would not be done according to any fixed plan or set order, but rather in obedience to irregular and sudden impulses.

Unless any particularly urgent work keeps them busy until night, the women would usually leave the fields for home at about 5 P.M. Then they prepare the evening meals, which consist of the same porridge-like dishes, made from various small, pounded grains, mixed with some 'curry', as those eaten for lunch. The customary time for this third meal is between 7 and 8 P.M.

On light nights an occasional *vanakkam* or greeting, this time directed to the moon, may be offered, but otherwise the Kolli Malaiyālis seem not to be in the habit of regularly praying, nor even of washing themselves, before going to sleep in their clothes, at about 8 P.M.

It is amazing that in spite of this, they do not at all smell so badly as do, for instance, the Pēriya Malaiyālis of the Shevroy hills, since they have taken to heavy over-dressing, under the influence of servants and other foreigners who came with the coffee-plantation to their hills.

The details of a Kolli Malaiyāli household,—which and how much food should be prepared and the like,—are decided by the oldest woman in a family, or, in a polygamous household, by that of the wives who prepares the food and in whose hut all the members of the family would usually have it. The menfolk are accustomed to obeying these arrangements of the women as a matter of course and without opposition or arguments.

4. DRESS AND ORNAMENTS.

In their outward appearance it is chiefly the different dress (see illustrations, particularly Plates 11, 12 and 13) which makes the Kolli Malaiyālis look a tribe of their own. This at least is so nowadays, although comparison with the general dress of Indian peasantry, say from the flourishing epoch of Buddhism until that of the Imperial Guptas,¹ shows that the Kolli Malaiyāli dress

¹ Compare statues and reliefs of Barhut, Sanchi, Amaravati or Elephanta and the wall-paintings of Ellora, Ajanta and Aurangabad, depicting contemporary daily life. Further: H. G. Rawlinson: *India*, London, 1937, chapters on *Buddhism* and *Harshavardhana and the Imperial Guptas*. H. Goetz: *Epochen der Indischen Kultur*, Leipzig, 1929, too describes on p. 84 the average men's dress in the time of Buddha as consisting of a short loin-cloth and a heavy turban and that of women as a somewhat longer cloth, which, however, leaves the upper part of the body free, with the mere exception of rich and heavy jewellery. The same author depicts on p. 199 the refined but simple dress of the better classes at the beginning of the fourth century A.D. in the time of the Imperial Guptas, '... that epoch of the highest and most refined Hindu civilization' as a thin loin-cloth, not longer than the knees, rarely accompanied by a thin, short jacket which was open in front, for men, and a similar frock, resting on the hips, usually also without an upper garment, in the case of women. T. R. Seshu Iyengar: *Dravidian India*, Madras, 1933, p. 208, in support of a similar contention, quotes V. Kanakasabhai Pillai: *The Tamils 1,800 years ago*, pp. 116-130, who says that 'a full dress was the outward sign of a servant rather than a master'.

simply longer preserved, though in a somewhat changed form, what once had been the privilege of most of the Indian people: a light and very practical dress, well adapted to the peculiarities of a tropical, dry climate, interrupted only by occasional rainy seasons.

The Kolli Malaiyāli men's dress consists of a string round the waist, made sometimes of silver network, which holds a white loin-cloth, about one quarter of a yard wide in front, and rope-shaped behind, thus covering the sexual organs completely, but not more than that (Plate 13, Fig. 2). A red line, woven into the upper part of the cloth which hangs down about two inches below the string by which it is fixed, runs parallel to that string or ribbon. A few betel leaves and a half-smoked *cheroot*, i.e. a cigar of native brand, are usually fixed between the string and the hip-muscles. A large, white loin-cloth (Plate 11, Figs. 3, 4; Plate 12, Fig. 2; Plate 13, Fig. 4) during warm seasons, or a blanket of dark brown colour, if it gets cool, completes the original dress of the Kolli Malaiyālis, who do not seem to have worn turbans or other head-dresses regularly.

But it is hardly necessary to add that, since recently, old woollen coats, soaked in perspiration, soiled with all sorts of indefinable dirt, preventing the healthy rays of the sun and the cooling, and at the same time hardening touch of the breeze from any contact with the skin of the chest, spreading uncleanness and contagion, are now considered the outward sign of dignity and progress, the symbol of honour and respectability.¹ What a hopelessly grotesque sight (apart from the many undesirable hygienic and psychological consequences!) these foul-smelling pieces of decaying woollen stuff produce, may be better imagined than described in detail, if the reader realizes that the small loin-cloth, covering the sexual organs, but otherwise naturally exposing the naked hips and abdomen, form the incongruous counterpart to the European-modelled upper dress.

¹ W. V. Grigson, I.C.S.: *The Maria Gond*, London, 1938, writes on this subject on p. 173, though with regard to another tribe: 'Skin diseases, such as scabies, ringworm and eczema, are common especially among Bison Horn Marias and Murias, who under Hindu influence are taking to the use of clothes. They cannot afford a change of clothing and dispensary treatment is defeated at once if the old infected clothing cannot be discarded. Hill Marias wearing only scanty loin-cloths are far less affected . . .'. Again, on p. 70 he writes on the hill Marias: '. . . it is to the fact that he wears so little that he owes it that he is far freer from scabies, itch and ringworms than the Bison Horn Maria and the Murias and others from the plains who more and more are imitating Hindu clothes but are too poor to afford either much washing or spare suit. At the numerous State dispensaries these are the commonest complaints and treatment is useless because the patient will not leave off the dirty, infected clothing. Luckily, coat and *waskat* are still rarities in the hills . . . Two men . . . who used to accompany me when I toured near the villages, always arrived coated and waistcoated above their loin-cloths but would discard the anomalous and unnecessary garments as soon as possible'.

This combination transfigures the noble and upright figure of a well-built, slim and self-respecting Malaiyāli into an almost obscene, at any rate outrageously disharmonic picture of cultural defection.

And yet the one case of a really self-humiliating and disgusting beggary, which I came across among these usually self-respecting hill-people, was concerned with the incomprehensible, but still so fervent desire of an elderly *pujary*, to get an old coat as a *baksheesh* for the stories which he had told me! The idea prevented me from fulfilling his request that the dignified and harmonious appearance of the healthy strong man should be converted into a disgraceful caricature by one of my old coats, which would soon become a nest of ever-moisty dirt and might well have caused the death of the good man, up to now so fitly protected against cool breeze and rain-showers by his thick blanket, and against the sudden heat, as soon as the clouds disappeared, or the storm ceased, by its easy removal or folding up. But in spite of a substantial present in cash, the *pujary* left me disappointed . . . Thus is the suggestive, almost dictatorial spell of fashion;—not only among Paris gents, but also among old priests in the remoter hills of Southern India!

The Kolli Malaiyāli women's dress had already been described in our introduction. Yet, some comment may here be added to this point. Girls before puberty (see Plate 9, Figs. 3, 4), and very often old ladies (see Plate 10, Fig. 3, left) beyond the period of physical attraction, wear the simple, white loin-cloth, peculiar to their tribe, not across the breast, as do the younger grown-up women, but tied round the waist only, thus leaving the upper part of the body free, similarly as it was the custom with the better classes in Malabar until recently, and—until about the ninth or tenth century A.D.—also in the rest of India.¹ That the disabilities of tying the cloth over the breasts are still vividly felt, occurred to me when I observed that also younger and middle-aged women leave the upper part of their bodies or at least one of the breasts free, whilst working among themselves in the house, and occasionally also when with their own menfolk in the fields: but cover them at once, as soon as they hear the approach of any strangers. This, I think, goes to suggest that the fashion of tying the cloth rather violently over the breasts (see Plate 10, Fig. 4)—a certainly neither hygienic nor 'natural' treatment of these essential and tender organs of a mother—has to be considered as a mere adaptation to patriarchal ideas, according to which the sight of the secondary signs in the female sex are 'indecent' and unfit for normal every-day life. We should not drop this subject, however, without mentioning

¹ Rawlinson, *op. cit.*, chapters *Buddhism and Harshavardhana and the Imperial Guptas*. H. Goetz, *op. cit.*, pp. 84 *seq.* and pp. 199 *seq.* T. R. Sessa Iyengar, *op. cit.*, pp. 208 *seq.*, and V. Kanakasabhai Pillai, *op. cit.*, pp. 116–130.

that in spite of this disability, the Kolli Malaiyāli female dress must still be considered far superior and better fitted to the climate of India than the present average Indian dress with its very long and usually heavy saree, in addition to blouses and petticoats and again inner blouses; a sum total of clothes which probably surmounts by far the amount of stuff worn by any other group of living women in tropical countries, such as India. That this all-covering saree plus blouses and underwear are simply a product of comparatively recent decay is clear, of course, to every student of Indian cultural history and every admirer of ancient Indian art.¹ But that survivals of the ancient, originally Indian dress are still in full use among a lively, prosperous class of peasants in the Tamil-speaking country, east of the Western Ghats, is less commonly known.

The short cloth, worn under the chief garment, which Richards considered as a mere survival (see our introduction) of the dress of Malabar and as not serving any useful purpose was, however, explained to me as a means of protection of the outer garment, during the period of menstruation. Whether this was an artificially superimposed explanation of an old institution, the true origin of which had been already forgotten, or whether it gives the true *raison d'être* of the thing, I am not able to decide.

The ornaments of the Kolli Malaiyālis are usually rich but seem to have lost much of their originality during the twenty-two years since the publication of Richard's observations on the point, quoted in our introductory chapter. The *toda*-like 'big boss-shaped hollow cylinder', which he mentioned, is nowadays very rarely to be seen, and then only in the largely widened, leatherly ear-lobes of quite old Malaiyāli ladies. The now more often worn gold rings of the fragile type, the customary ornaments added to the *tali*, and sometimes five or seven broad beautifully polished silver bangles on the right upper arm,—all are of the kind which is typical in the plains as well.

The amount of cash spent on ornaments is comparatively high. I met a number of men wearing golden rings in their ears worth Rs.15 to 20. There are few Kolli Malaiyāli women who have jewellery worth less than that amount in their noses and ears, but many wear, as was mentioned above, ornaments for about Rs.300 to 500 on them.

The men's hair-dress is characterized by the shaved front part of the skull and the long remaining hair, tied in a loose knot at the back. Grown-up women part their hair in the middle and bind it in the generally observed fashion in a back-knot. The afore-mentioned *mun-kudumi*, i.e. the fore-lock, reminiscent of the Malabari hair-dress, is characteristically worn by girls before puberty. So much so that the question 'Has so-and-so still

¹ O. R. Ehrenfels: *The History of Dress*, in *The Journal of the Sind Historical Society*, Karachi, 1941, Vol. V, pp. 12-24.

her *mun-kudumi*? ' amounts to asking whether she is already of a marriageable age, and thus indirectly proposing to her.

I found that little girls in Muslim and Christianized Tamil families of the plains are occasionally adorned at festivals with a front plait and even jasmine flowers, arranged much similar in shape to the fore-lock, which might thus appear to survive persistently in Southern India. The question is not without interest, in view of possible culture-historic relations between this hair-dress and that found on the bronze-statuettes of a 'Dancing Girl', excavated at Mohanjo-Daro, the *usnisa* (i.e. the excrescence on the head of the Buddha statue) and the asymmetrical shape of the typical Rajput turban.¹ The asymmetric women's hair-dress of the poorer Tamil castes of the plains, too, may ultimately go back to the same source.

5. GENERAL TRIBAL CHARACTER.

Edgar Thurston, the almost classical authority on South Indian ethnology, though obviously not agreeing with a 'shrewd but unscientific observer' still finds his contention worth quoting, according to which the Malaiyālis were but a split-variety among the 'Tamils of the plains with the addition of a *kambli* or blanket, a luxury', which, it is added, is 'even denied to the females'.² That the Kolli Malaiyāli women's dress, too, is essentially different from that of the Tamil-speaking agricultural castes of the plains, was already mentioned in our introductory chapter as well as repeated in the previous paragraph. But quite apart from these survivals in dress and fashion, important as they may ever be to culture-historic investigation, based upon comparison, the Kolli Malaiyālis seem still to own something which is more precious, I should say, even than the most interesting and warmest *kambli*: they have a care-free, open mind and a joyously independent character of self-respect.

This, at any rate, was my first impression, when I ascended from Sendamangalam to the freshly-green hills and met a small group of them, consisting of two men and a girl, carrying fruits down to the plains. A halt was made at once by the freely chatting folk who offered hospitably some of the lime-fruits but would not accept payment from a visitor whom they obviously considered as a sort of guest in their hills and towards whom the much-esteemed virtue of hospitality had to be exercised. Peppermint sweets, which I offered instead, were mistaken for quinine tablets, but none the less chewed with good-naturedly humorous comments on their queer taste. There seemed to be more energy in the movements of these people than can usually be found among the husbandmen in the plains.

¹ O. R. Ehrenfels: *Mother-right in India*, op. cit., pp. 69, 148, 184 seq.

² Edgar Thurston: *Castes and Tribes of Southern India*, Madras, 1909, Vol. IV, p. 406.

Yet, neither then, nor later, during my manifold wanderings over the Kolli hills did I feel that manifestation of aggressive suspicion in the eyes of the people which,—among the estate coolies of other hills,—so often suggests a taxing valuation, or perhaps even a thought like that: 'Is this a rich *dorrai*, or a poor one? And, if the former, how could I get something out of him?' The way of conversation between the two men and the girl in this group of my first Kolli Malaiyāli friends seemed natural and at the same time dignified; that of free and easy-going people, unhampered by any self-consciousness, which has become such an outstandingly characteristic mark with the womenfolk, not only of the plains, but also of the Pēriya Malaiyālis. And, later on, there were a hundred and one little observations, encountered by me in the Kolli hills proper, which supported this first general impression. The free and yet not impolite way of shouting to each other, across a small valley or over a field, the good-natured laughter and the wide-spaced steady pace of both men and women, again and again recalled to my mind, if I may illustrate it with a rather personal remembrance, the quiet atmosphere of my own native hills in the *Waldviertel* of Lower Austria, so decidedly differentiated from the plains, also there!

That the essence of these, my recollections, are more, however, than a mere personal sentiment, was re-affirmed to me by the narrations of two Brahmin and one Muslim official, as well as an English missionary and his Indian Christian assistant, whose duties brought them all in oft-repeated contact with the Kolli Malaiyālis, partly during a period of many years, and whom I had the good luck to meet one by one, somewhere in the hills. They all agreed that there does exist a profound difference, not only in customs and the unwritten law, but also in the general character of the Kolli Malaiyālis, drawing a line of demarcation between them and the Gaundans of the plains, which is more essential, indeed, than that of the *kambli* only! Self-respect, love of truth, economy, combined with a certain amount of independent-minded activity but without any peculiarly marked inclination towards violence or crimes otherwise, absence of jealousy and even a certain sense of good-natured humour seem prominent in this respect.

The causes to which this collection of fine mental qualities are being ascribed are many. There is the fresh, though notoriously malarious, climate of the hills, the healthy, hygienic dress, the comparatively good diet of three substantial meals a day, poor as they may ever be in vitamins and albumens; generally speaking, the comparatively good economic position in a not too hopelessly overpopulated area, which top the list. There is, moreover, the comparative isolation of the hills from foreign immigrants, traders, money-lenders and coolies of the plains, thanks to Government's protecting policy of not opening

these hills to large-scale coffee-plantation, which helps to preserve the original character of the Kolli Malaiyālis. One among all these reasons, however, seems of special concern to us in connection with the particular object of these notes, *i.e.* the traces of a matriarchal civilization among the Kolli Malaiyālis; traces which manifest themselves in the general relation of the sexes and in the active rôle played by women in the daily life of the tribe.

Without wishing to anticipate too much of the contents in the below-following chapter on sociology, it should already at this place be stated that the marriage system of the Kolli Malaiyālis, though unmistakably patriloal, still contains functionally tangible remnants of former polyandrous laws.

Flirtations of all degrees, inclusive a more serious love-making, in consequence of which a Kolli Malaiyāli wife would move to the house of her admirer, belong to her undisputed birth-rights, as long as she is once married to a first legal husband and—most important!—as long as the lover is a Kolli Malaiyāli himself. Thus, a sense of individual responsibility is being kept alive in the women. They decide by yielding or not yielding to the overtures of their admirers, not only their own fate in practical every-day life, but also that of their children, who invariably go with their mother to the new lover's house, although they continue to belong theoretically to the first husband.

It is an interesting and psychologically quite remarkable fact that the Kolli Malaiyālis, though very sensitive in points of honour and in what public opinion calls dignity, have still kept alive, among themselves, the utter freedom from the vice of jealousy and from regarding their wives to be their private property or chattel; a freedom which appears to have characterized the outspokenly matriarchal societies with a lawfully acknowledged polyandrous marriage system. In spite of this, we find a percentage of about ten marriages which are voluntarily monogamous, and in addition to this, a very high relative number of happily married old persons who have had other partners previously, but who seem to have now found 'the real thing'.

Apart from these privileges of married women, unmarried girls have also a say in the matter of their first or official marriage which, however, appears to be nowadays invariably arranged by the relatives. Still it is an acknowledged rule that a girl must not be unwillingly forced into a marriage, however desirable it may be from the economic or family point of view; not even after the bride-price has already been accepted by the girl's family. The reason given for this, in India by no means generally accepted respect for a girl's feelings, is usually that it would be of no use to force her into a marriage, which she does not desire, as she would run away soon. But as this is what actually happens in 90 of a 100 cases, the true reason may well

be assumed to be a cultural survival from a time when a girl still chose the husband herself. All these institutions, patriarchalized as they ever may be, still tend to preserve a certain equilibrium in the mutual relations between the sexes; an equilibrium which I found to result less in any sort of oversexed tension, as some might have expected, than in a more matter-of-fact way of looking on life and its problems, as it can usually be found among other castes. Thus I was freely addressed, for example, by a middle-aged Kolli Malaiyāli woman, when she found that I was going the wrong way in the rice-fields, and shown the proper short-cut. Nobody found any fault with this, similarly as women among the Kolli Malaiyālis would hospitably spread a *kambli* on the verandah of their houses for a stranger visiting them, and often also take part in his conversation with her husband. What a difference this way of thinking constitutes to that which has become already the 'general feeling' among the Pēriya Malaiyālis of the Shevroy hills, was brought home to me by the following instance. I took interest in the pounding of small grains in a stone-mortar, executed by an elderly Pēriya Malaiyāli woman, in the presence of a few villagers whom I held to be her relatives. Before leaving the place I took the pestle in my hand myself and tried to work it. The husband of this particular woman happened to be absent that day, so she found it necessary to 'report' to him, at his return, the 'incident' . . . and it took my interpreters much time and talking to explain that my interest in the stone-mortar and the pounding pestle was not of any indecent nature! Such is the difference of mentality between the comparatively unspoiled Kolli Malaiyālis and their sophisticated cousins of the Shevroy hills.

The great number of *taboos* concerning all things connected with sex or sexual relations, imposed on many castes of purely patriarchal mentality, creates often an atmosphere of continuous artificiality and puts a strain on the individual which very often annihilates all natural co-operation between the sexes, also in absolutely un-sexual matters. These difficulties are as yet unknown to the Kolli Malaiyālis who seem to be amazingly free from the hysteria of the sex-taboo, at least so far as their own people are concerned. In that way they appear to save a lot of energy, which they use for more practical purposes, than hiding from others, what they cannot hide from themselves.

There is, on the other hand, enough evidence that in spite of all this the Kolli Malaiyālis too could not keep themselves free from the general human tendency of megalomania which in the case of Indian life usually manifests itself in the desire to have one's caste considered as something slightly superior to what it is held to be by others. The Kolli Malaiyālis insist on being called *Gaundans* and considered as Vellalas of the plains, who happened to have settled down in the hills a few centuries back. That the literal acknowledgement of this claim would

stamp them, not only as much less interesting, but most probably also as historically less noble people, than what they really appear to be in the eyes of the ethnologist;—that matters little with them. What matters in their eyes is that the plains-people look down upon them as 'poorly-dressed, uneducated hill-folk' who have perhaps better food and a far superior physical and mental health, but less ready cash to spend, than the sophisticated peasantry of the plains:

Similarly it is amazing that the sin of jealousy, conspicuous by its absence in matrimonial affairs among Kolli Malaiyālis themselves, is by no means absent so far as outsiders and traditional privileges, rituals or the social position of the family are concerned. A Kolli Malaiyāli girl, who has any *liaison* with a non-caste-member, is at once excommunicated along with her husband; a very cruel punishment in an area inhabited practically by one tribal unit only. Or, to give another example of communal sensitiveness, the *pujary* of local Kolli Malaiyāli temples ought to give the *buttu*, i.e. the sacred mark on the front affixed to devotees at the occasion of general festivals, firstly to the members of his own *kulam*, or exogamous group, and afterwards to the other devotees only. His failure in doing so and occasional transgression by giving the *buttu* to any other Kolli Malaiyāli, before his *kulam*-fellows, ranges in the first place among the causes for expensive civil processes which have ruined many a prosperous family. This is certainly jealousy in its purest form, though not of the sexual variety. But it would perhaps not be fair to the Kolli Malaiyālis should we fail to mention that these sentiments seem to be rather imported from the plains than to belong to the original character of the tribe, such as it might have been, before traffic with the plains has become so common as it is now. We must never forget what a strain is being put upon the sense of self-respect among all the less Hinduized 'tribal castes' by their being classed as 'backward' and 'uneducated' in the eyes of the more Hinduized or Christianized ones. Everything, good or bad, that differentiates them from the 'ordinary people' is being looked down upon as a mark of utter savagery and we must therefore not be surprised to find an almost morbidly exaggerated sense of group-honour among these castes and tribes. They feel that they are really of a higher cultural standing—to put it in our language—in comparison to the Depressed Classes of the plains. But the only way to get a generally acknowledged proof for this claim is the adaptation to the generally accepted rules of life-conduct among the caste Hindus; such as refraining from eating beef, introduction of child marriage, prohibition of re-marriage for, and a bad position of, widows;—generally speaking, lowering the social and personal position of women, even if this does not go so far as to actually introduce the *gosha* or *purdah* system. Since all these items contradict the spirit of life in a matriarchal

society, it is inevitable that the love for an originally matriarchal tribe's old traditions and its present social status in the midst of a thoroughly patriarchalized population must conflict. The oversensitiveness in matters of tribal honour is one result of the strain, particularly emphasized by the intense group-feeling of a small unit which became the more conscious of its aloofness in cultural matters, by its increased physical intercourse with peoples other than themselves. Both these mental qualities are strongly pronounced among the Kolli Malaiyālis: an over-emphasized group-feeling as such, which tends to substitute the sentiments generally felt towards the family by those of the clan, and an exaggerated sensitiveness in points of tribal or sub-tribal honour. I met, for instance, with one single case of impoliteness, even hostility, among the Kolli Malaiyālis when my Indian companions addressed a little girl in the generally accepted manner as *pillai*, child. They were given to understand that every Kolli Malaiyāli, however young, must be addressed by a non-Kolli Malaiyāli with the honorific title of *Gaundan* in the case of a boy, or *Gaundaji* in that of a girl.

The boundary lines between the different groups to which these feelings refer overlap each other and are not clearly cut. There does exist, though in a more theoretical sense, the consciousness of unity embracing the three endogamous sub-castes of the tribe, i.e. the Pēriya, the Kolli and the Pachai Malaiyālis. More in the sense of family affinity is a unity felt by all members of the same exogamous *kulam*. But in spite of this, and of the fact that there are usually several exogamous *kulams* represented in each village, there does also exist a strong 'communal spirit' among all the inhabitants of a village; a fact which will be of interest to us in regard to the question of survivals of a former rule of matrilocality.

Another characteristic feature of the Kolli Malaiyālis' mentality, which, however, they share with the husbandmen all over the world, is a keen sense of economy, combined with contentedness and love for the simple ways of their ancestors and with the age-old desire of every peasant to acquire more ground. A Kolli Malaiyāli proverb, for instance, says:

'Buy a cow with money in your hand;
But with borrowed money—buy land!'

This means as much that the luxury of a milk-giving cow is permissible to the fortunate owner of ready cash only, whereas the acknowledged desire to acquire more fields may be fulfilled even with credited money; among other reasons, also because landed property can always be re-converted into ready cash, without too much loss, should the debtor meet with difficulties in paying back the loan. Another significant fact, throwing light on the general psychology of the Kolli Malaiyālis, is that murder cases, though by far less common than in the plains, do,

if ever, occur in the course of quarrels over the possession of fields, not over that of women, as it is the case among the fully patriarchalized plains-people. A woman, to the Kolli Malaiyāli, is an independent human being whose voluntary sympathy and love may be acquired as a free gift, but she is not a piece of chattel which one owns like an inanimate object. The possessive instincts among Kolli Malaiyāli men and with them the feelings of jealousy thus appear to be wholly concentrated on the arable ground, the landed property.

Still, also here the influence of the plains gets more and more command over the financial transactions of a Kolli Malaiyāli family. The general Indian fashion to show one's social position, by means of improporportionately high marriage expenses, has already taken hold of the Kolli Malaiyālis' mind who do spend occasionally sums up to Rs.300 and more on a marriage ceremony for entertaining the guests and for the exchange of more or less useless presents of clothes and jewellery. But the disintegration among them has not gone so far, at any rate, as it has among their cousins of the Shevroy hills, where I encountered one fine day a group, consisting of two exhausted men, resting at the wayside with their sweat-soaked European third-hand woollen coats on, and, between them, a gasping, over-aged pony, the protruding bones of which seemed directly covered with the greyish-brown hair of the poor brute, likewise soaked in the sweat of over-exertion. Seeing that the pony had nothing to carry and remembering to have noticed it on the previous day in a remote village across two steep valleys, I wondered for which purpose the queer group had set out at all! Information was given me proudly that its sole object was to reach a more distant village where a marriage ceremony was to be celebrated. The old pony, purchased from a planter whom it could obviously no more carry to his coffee gardens, was supposed to provide a 'really dignified marriage procession of the Pēriya Malaiyāli bridal couple there'—*pukka* plains-fashion, and hence desirable beyond expression . . .!

The Kolli Malaiyālis' love for truth, in fact their inability to tell lies, was described to me by officials, who ought to know, to have been an almost general, though unconscious, virtue until about forty years back before the spreading of closer contact with 'civilization' and its 'blessings' had taken place. But even now Kolli Malaiyālis are by far more trustworthy and honest in their words and dealings than the same class of people in the plains.

Their hospitality towards foreigners has already been mentioned as a prominent feature which, however, seems to absorb all feelings of pity and all humanitarian instincts towards men or animals otherwise.

The love for children is great, the more so perhaps as they are not as numerous as in the plains, two to four per mother being the average. Although not educated according to any

systematic or traditionally established course, and scarcely ever punished by their parents, the Kolli Malaiyāli children appear to be amazingly obedient and well-behaved. But it is true, on the other hand, that the average Kolli Malaiyālis, other than the ordinary members in a *jungli* tribe elsewhere, do not know usually anything either about the religious beliefs or the tribal laws of their own community. It is only the *pujary*, the priest, who is generally able to say something about the former, and the *ur-gaundans*, i.e. the village headmen, about the latter. Whether this rather amazing state of things is an outcome of a more recent cultural degeneration, or the result of changes in the functional position of women who once upon a time must have gone through some sort of tribal initiation during the seclusion, observed in South India, at their attainment of puberty (a seclusion which is now considered to signify their pollution!), this is difficult to decide by direct observation only and without the indications gained through the methods of comparative ethnological observation.¹

6. MYTHS OF ORIGIN.

The tripartite Malaiyāli tribes-people firmly believe in the historical correctness of their oft-repeated story of origin,² which is almost all, an ordinary Malaiyāli is able to say, if asked, to give any record on his own peoples' history, beliefs or religion.

The gist of this story is the belief in a migration of three brothers from Conjeeveram, the old capital of Tamil culture, to the three hill groups now inhabited by the Malaiyālis in the Salem District, i.e. the Shevroy and Chiteri, the Kolli, and the Pachai hills. The two former have been occupied by the *Pēriya anan*, the eldest brother, the latter by the *Chinna anan* or youngest one, whereas the Kolli hills fell to the *Nadu anan*, the middle brother, according to this story which, however, is phantastically varied and differs almost without exception at every place where it is re-told, especially so as to the reason for this mythical migration from the plains to the hills. But most of the numerous variations agree in the one point that at the occasion of this migration the wives of the three brothers were either lost or committed *suttee*, the ceremonial suicide of patriarchal caste Hindu widows, after they mistook their husbands for having been killed during a hunting expedition or so, in the course of which the latter explored the above-mentioned three hill groups.

¹ Compare Prof. W. Schmidt and Prof. W. Koppers: *The Culture-historical Method of Ethnology, A Scientific Approach to the Racial Question* (Preface by Dr. Clyde Kluckhohn). Furtuny's Publishers, New York, 1940.

² Compare Richards, *op. cit.*, pp. 156 *seq.*, and Thurston, *op. cit.*, p. 407, Vol. IV.

These tracks, according to a report on this circle of sagas written by Mr. F. R. Hemingway and quoted by Thurston,¹ were at that time ruled by Vedans and Vellalans who resisted the 'Malaiyāli invaders, by whom they were however defeated'. Richards holds that at about the first flourishing epoch of Conjeeveram '... between the Mauryan Empire and the Dravidian Kingdoms (Chōla, Chēra, Pāndiya) a broad belt of forest intervened' and he thinks that 'it is possible therefore that in the Mauryan period Salem District was covered with primeval jungle'.²

It is in this connection that the later part of Hemingway's above-quoted report gains interest, particularly so in regard to the question of matriarchal cultural survivals. The Malaiyālis there are said to believe that their three brother-ancestors 'married women of the' newly conquered hilly 'country, Pēriyanan . . . a Kaikolan, Naduvanan' (i.e. the ancestor of the Kolli Malaiyālis) 'a Vēdan and Chinnianan a Deva Indra-Pallan' and 'gave their sister to a Tottiyān stranger' for a little food supplied by him. Hemingway further states that certain 'customs survive . . . in support of this story. Thus the Pachai Malaiyālis put aside a portion of each meal in honour of their Vēdan ancestors before serving their husbands and at their marriages they wear a comb . . . said to have been a characteristic ornament of the Vēdāns Bridegrooms place a sword and arrows in the marriage booth to typify the hunting habits of the Vēdāns and their own conquest of the country. The Malaiyālis of the Kolli hills are addressed by Pallan women as brothers-in-law (*macchan*) . . . Tottiyān men regard the Malaiyālis as brothers-in-law, Tottiyān women as their brothers but treat them very coldly in remembrance of their having sold their sisters "for a mess of pottage"'.³ All these castes, to which the Malaiyālis are here reported to believe that their maternal ancestors belonged, have been classed in my comparative study on *Mother-right in India*⁴ as belonging to two strata of matriarchal civilization, both of which form the agricultural middle type roughly parallel to neolithic village civilizations. Among them the Kaikolans and Vēdāns were classed as possibly belonging to the more primitive 'PUL-type' and the Pallans to the more highly specialized 'PAR-type'.

Although important from the ethnologist's point of view, the stories of ancient relations with 'indigenous castes' are by far less consistent in the minds of the Malaiyālis themselves than is the first part of their myth of origin, which was re-told

¹ E. Thurston, *op. cit.*, pp. 407 seq.

² *Op. cit.*, p. 45.

³ Quoted by E. Thurston, *op. cit.*, p. 408, Vol. IV.

⁴ *Op. cit.*, see sub 'Alphabetical Register of Matriarchal Castes and Tribes', pp. 18-36.

to me in almost countless variations without one single case of the latter part's repetition.

One of these variations, narrated to me by the rather reliable old Sevi of Karengaddu, a *kutari*, i.e. a professional dancer and story-teller, simply stated that 'the first man who ruled on the Kolli hills was Yerania Ravandan, a petty chief of the Chōla dynasty, at the time when the Chōlas, Chēras and Pāndiyans ruled. In this period the three Malaiyāli brothers arrived from the North and came via Conjeeveram, not from Conjeeveram to the hill groups, which they distributed among themselves . . .' in the usually related manner. After he had explicitly told this part of the story, the *kutari* added proudly: 'and each of the three brothers had a huge army with him!' The significant expression of an excitement, mixed with pride, in the eyes of the old man, whilst straightly looking at me and telling this part of his story, made me particularly suspicious with regard to its genuineness. Still I came to believe after quite a good time of secret examination that the army story and the migration from the North were not *ad hoc* inventions of the *kutari* (although he certainly did suffer from the above-mentioned caste megalomania) but that they were part and parcel of the old traditional tale which he had been taught to believe and to repeat in the sort of sing-song intonation, peculiar to Tamil story-tellers, years ago when he was still a young man.

The sum of these stories then might lead us to believe that in the Malaiyāli civilization there are two elements: one, more indigenous and connected with a matriarchal agricultural civilization to which the ancestry of the wives of the first 'Malaiyāli' settlers seems to have been ascribed; and the other, more closely connected with the 'outside world' of the then already patriarchalized Tamil kingdoms of the Chōlas, Chēras and Pāndiyans.

We must, however, never forget that in local peasant traditions correct historical names of kings and dynasties very often get mixed up with much older traditions and events. Thus I found that megalithic tombs made of crudely-shaped, big stone-slabs, containing simple red earthenware urns and iron implements which I opened in the Shevroy hills, were invariably called *Pāndiyan kallu*, i.e. Pāndiyan stone, by the local Pēriya Malaiyālis, but at the same time connected with a miraculous race of dwarfs, not bigger than one span or two. (See the paragraph on 'Megalithism' below.)

The name *Keralan*, according to Richards,¹ used by all the three Malaiyāli groups, 'appears in the inscriptions of Asoka and is supposed to be identical with Chera' (see *Malabar District Gazetteer*, p. 27). I found that Pēriya Malaiyālis believe that it was the original caste-name of the Malaiyālis before they split

¹ *Op. cit.*, p. 155.

up in the three present sub-tribes. They say it was the name 'of a place, the original home of the Malaiyālis', where they lived before they migrated into the Salem hills. Although they profess utter ignorance where this place was, still the whole story makes it rather probable that the Malaiyālis came from Malabar, *i.e.* the ancient Kerala. But it must be also considered as possible that this name Keralan goes back to quite another place and a still much older period, when a migration might have occurred from a third place, possibly from the Indus area, whence the present people of Malabar as well as the Malaiyālis might have come to Southern India. I have shown that at least *re.* the former there exists much likelihood for such an hypothesis.¹ With this interpretation suits the Malaiyāli tradition of a migration 'via Conjeeveram from the North' which I have found current among the Kolli Malaiyālis. Malabar, on the other hand, would not fit in this story, for Malabar lies to the West and South-West, not to the North of the Salem District.

We should, therefore I think, not prematurely try to arrive at any conclusions, already at that stage of our description, but rather postpone this until we shall have taken more aspects of connected problems into account in the below-following paragraphs and finally in that on culture-historic conclusions.

7. SOCIOLOGY.

Both, the social organization of the tribe and of the family among the Malaiyālis, appear to be entirely patriarchal at first sight. All administrative and legislative power lies without exception in the hands of men, not giving any consideration to the voice of women, and all property is exclusively inherited by males from males. The latter rule is being applied with such a vigour that even ornaments, given to daughters by their fathers, have to be returned to the brother (or brothers) at the father's death, as even these things are considered part of the legal share of the sons in their deceased father's property to which the unfortunate daughters have no permanent access whatsoever.

This general feature of modern Malaiyāli life, however, will hardly astonish the ethnologist, as it is an oft-repeated experience that in the course of patriarchalization the financial operations of the family first, and the so-to-say governmental power of the tribe in the second place, are being usurped by men,² whereas other realms of social life continue often for quite a long time to bear marks of a former matriarchal civilization.

¹ In *Mother-right in India*, *op. cit.*, pp. 179 *seq.*

² W. Schmidt and W. Koppers: *Völker und Kulture*, Regensburg, 1924, sections on the problems of matriarchal civilization.

Tribal Organization.

The tribal organization of the Malaiyālis differs slightly in the case of each of the three sub-groups. All the minute variations of their differences, however, have been so exhaustively described by the two afore-quoted authorities, F. J. Richards¹ and Edgar Thurston,² that we serve our purpose better by not getting lost in the numerous minor variations but rather by merely stressing the rough outlines of a set of rules and regulations which seem to be ostensibly a product of later-date environmental influence on Malaiyāli life.

Each Malaiyāli village is headed by an *ur-gaundan* (or *kutti maniyān*) who is assisted by an ordinary village *pāṇchayat* and usually also by a subordinate (a *kangani* in the Shevroy hills) to do duty under him. Each of the three Malaiyāli sub-groups is theoretically ruled by a *pattarkaren*, the tribal headman, although his influence is much less vitally felt than that of the *ur-gaundan* or village headman and extends itself chiefly on matters of ceremonial importance. The headmen of a *nadu* acknowledge the intermediary authority of a *periya gaundan*, a big Gaundan, between them and the *pattarkaren* or tribal headman. A *nadu* is a group of neighbouring villages, forming a more or less traceable economic unit in the Kolli hills. All these offices are inherited in a purely patriarchal line, moderately paid and usually linked to comparative wealth and personal influence. Inability of mind or body or, as I had occasion to observe myself, conversion to a foreign religion causes deviation of the line of inheritance to a brother or to the legal son of the unfit heir, who, in the functional sense, may really be his polyandrous half-brother. This feature, however, will be later discussed, in connection with the marriage system itself.

The tribe is being divided into sixty exogamous septs or *kulams*, with peculiar names attached to them, of which the following list shows a collection :—

Kopaiyan—Proud fellow.	Kolukattai—A shapeless rice-flower cake; an ugly fellow.
Chinuppan—Little fatter.	Tettupulai—Bamboo-flask of honey.
Kudukkan—One who has a gourd.	Puliandai—Thorny shrub which will entangle even a tiger.
Yerumaiyan—One, like a buffalo, an uncouth fellow.	Tenan—A thief.
Sataiyan—One who has a whip.	Kavarsam—King of forest.
S a m a b a l a d i—One who smeared his body with ashes.	Mannipan—A dull fellow.
Yeliyan—Younger one.	Kalasan—One who has got a small pot.

¹ *Op. cit.*, pp. 158 *seq.*

² *Op. cit.*, pp. 419 *seq.*, pp. 428 *seq.*, pp. 431 *seq.*

Valanjiyan—To Valanji village belonging.	Alankan—One who makes a noise.
Kanadaiyan—One who has a glass or a mirror.	Yelanandai—Young head, or soft skull.
Kaltotti—Stone tub.	Kutadi—Dancer.
Sekeleti—One who steals cows.	Kallan—Thief.
Pachanan—Cultivator.	Vedan—Hunter.
Sollan—One who keeps promises, who can speak well.	Maravan—Warrior.
Madavettan—One living in a storied house.	Suriyan—Sun.
Seravetti—One who cuts wood.	Aduvan—A mixture of paddy and a kind of grain.
Chilali—Petty man.	Karavadaian—One fond of hot cakes with chillies.
Ambalan—Headman.	Kapukan—A cunning fellow.
Kundukali—Limping man.	Korvan—Class of hunters.
Partikudaiyan—One who has a cotton umbrella.	Kavarai—One who holds the white tail of a kind of deer; an emblem of royalty.
Valiandi—A strong man.	Manakundan—A boastful, stout, proud man.
Kadataiyan—Owner of forest or garden.	Kelaiyan—One who keeps fire burning in a flame.
Kutiyaandi—Little lord.	Konan—Bent, or crooked man.
Velan—One who has a spear.	Sembalan—One who ate half-ripe fruits.
Kanadan—One who owns forest land.	
Kavi—Poet.	

The first three *kulams* seem to constitute a more or less aristocratic group, the nobility of which, however, manifests itself more in name than in the affairs of practical life. Kopaiyan and Chinuppan, as well as Satai and Sotai, must not intermarry among each other, as they are supposed to be descendents from each two wives of one husband and hence consider themselves to be brothers.

In each village there are several of these *kulams* represented, sometimes as many as ten to fifteen. Usually therefore marriages are being contracted within the village, with one of the members of another *kulam*, represented therein. Still, village exogamy does occur as well, as we shall see later. All members of one village, to however many *kulams* they may belong, are in a condescending sort of way looked down upon by other villagers and termed as *kulikaren*, 'daily labourers', notwithstanding the fact that these other villagers may partly belong to the same *kulams* as do those on whom they look down. This is so, in spite of the fact that hospitality to the very same people is considered as such a sacred duty that it would be held as an offence should any Kolli Malaiyāli carry food-provisions with him if touring to or through any other Kolli Malaiyāli village, where he would

be always provided with all necessary food-stuff as a matter of course. I should not like to decide whether or not these curiously opposing attitudes towards members of other villages have something to do with the generally accepted rule that any labour offered for daily wages to any Kolli Malaiyāli by another one ought to be accented and paid by the former one, however hard this may be to him and however useless the labour offered and accepted may appear from the economic point of view. Hence all villagers may be said to belong to a more or less compact economic association, based on a sort of mutual dole insurance. The fact, however, is that apart from the rule of exogamy, the unit of the *kulam* is by far less vividly marked in laws and regulations, or felt in every-day life, than that of the village. Moreover even that rule of *kulam* exogamy is being violated in all practical purposes, though not in theory. This is so, because, as we shall have to describe it below in our paragraph on the marriage customs, a married Kolli Malaiyāli woman is free to live with any Kolli Malaiyāli lover of hers, even though he should belong to her own *kulam*, and hence would not be allowed to marry her legally. The children, it is true, belong to the woman's nominal first husband, and hence to his *kulam*, but functionally the rule of *kulam* exogamy is by no means consequently carried out.

That already shows the world of difference existing between this lax sort of a merely nominal exogamy and that observed by totemist peoples. But apart even from this laxity in the conception of exogamy, there have also no traces of any interrelation been observed by me between the name of a *kulam* and its members' taboos, family traditions or beliefs otherwise. This, in connection with some of the names of the *kulams*, such as Kanadaiyan (*i.e.* one who possesses a mirror) or Partikudaiyan (*i.e.* one who has a cotton umbrella), suggests a comparatively late date of introduction into Kolli Malaiyāli life of the entire institution of exogamous septs, which does not seem to have been properly assimilated by them. This goes to confirm the view held by H. Niggemeyer¹ and by myself,² according to which totemist cultural elements reached Southern India at a later date and in an already corrupted form only. Thus it may well have been that the idea of set exogamous units in Kolli Malaiyāli life has been brought to them by such a later-date totemist infiltration. The strangely proselytizing capacity, inherent in the totemist idea of exogamy, based on fictitious relationship only, has already been often observed in many other parts of the world.

¹ *Totemismus in Vorderindien*, in *Anthropos*, Mödling bei Wien, pp. 407, 579/XXVIII, (1933).

² *Mother-right in India*, *op. cit.*, especially pp. 75 *seq.* and pp. 100 *seq.*

Family Organization.

The purely patriarchal character in both inheritance and general organization of the Kolli Malaiyāli family has already been mentioned. Still the position of the *maternal uncle* shows certain remarkable features. Among the Kolli Malaiyālis, as in the case of so many other castes observing the *menarikam* system of cross-cousin marriage, the maternal uncle of a girl marries her to his own son. It has often been discussed and was often considered as rather doubtful whether this custom in itself must be ascribed to any importance, attached to the maternal uncle as such, which, of course, would indicate a matriarchal cultural survival. The giving of bride-prices within this system of *menarikam* cross-cousin marriages rather opposes the theory of a matriarchal origin, as the implication is that in matriarchal society the maternal uncle belonged really to the mother's family. Thus, his giving of a bride-price on the part of his son for his sister's daughter, that is within what is one social and economic unit in a matriarchal civilization, would appear to be nonsensical. Unless, of course, the introduction of the bride-price happened under the influence of later-arrived patriarchal conceptions, in the eyes of which the mother belongs to a family different from that of the mother's brother, namely to that of her husband. A maternal uncle would thus appear to possess an important position in relation to his niece in a *menarikam*-observing society, though on quite different grounds, in a matriarchal as well as in a patriarchal type of society. In the latter he would exercise his authority as the prospective bridegroom's father, in the former as the mother's brother. And indeed I found that among the Kolli Malaiyālis a girl's maternal uncle has a certain right over her, but significantly not so much in his capacity as the prospective bridegroom's father than in that of her natural guardian. It is he who 'gives her away in marriage', whether to his own son or somebody else. And most remarkably, it is also he, not her mother or her father, who receives the bride-price! I found that this is so, at least, in the case of the eldest among several sisters, of whom the younger ones are usually 'given in marriage' by their father, who would also accept the bride-price paid for them. This institution, if combined with the rule of *menarikam* cross-cousin marriage, comprises an apparent contradiction, as it would mean that in this case a girl's maternal uncle had to pay into his own pocket the bride-price for his niece, on the part of his son. It may, of course, be assumed that the maternal uncle's claim on the bride-price originated only as a compensation for his son's right to get the girl in marriage, in such cases where she married somebody else. That this is not so, however, appears to be quite proved by a popular proverb which I found being used in confirmation of the maternal

uncle's natural, so-to-say innate, authority over his niece, which is based on the matriarchal theory of his family relationship with her. This proverb runs:

Koḍu koḍukkuvarrukku kay koḍukka vendum, i.e. 'The brother gives the seed of a plant and (in return) wants (or deserves) a fruit (from it)'.

This, I think, shows firstly that the maternal uncle's right on the bride-price, paid for his niece, is popularly not considered as a mere substitute for his son's claim on her, but as his own right to which he is entitled in his capacity as her nearest relative and guardian; and secondly, that thus the maternal uncle, according to matriarchal conceptions, and not the father, figures here still as the head of his sister's family in the mentality of the proverb.

Thus the maternal uncle's claim on his niece's bride-price may, I think, be safely accepted as a survival of a matriarchal system of society in which a child's father has less duties towards, or claims on it, than the mother or her brother, who often became head of the family when the political power of men increased for some reason or other. This view, I think, is further supported by the above-mentioned rule, according to which the claim on the bride-price by a maternal uncle is nowadays being confined to the eldest of several sisters, of whom the younger ones would already be 'given away' by their father; a typical case of transition from one social order to another in which, as so often, the older system applies to the marriage of the eldest child only, whereas the younger ones are less ceremoniously treated and hence already considered as belonging to their father instead of to their mother's brother. Further proof is being added to this view in the opinion which I found often expressed by Malaiyālis that although all relatives ought to help orphans, this duty was particularly imperative on a maternal uncle.

If it may be assumed that the course of events in the case of the *menarikam* type of cross-cousin marriage among the Malaiyālis was one from matriarchal to patriarchal conceptions, it very likely also indicates a similar history of origin in the case of other Indian castes. This again would add much to those cultural elements which, in spite of their functionally patriarchal effect on practical life, still go back to a historically matriarchal civilization, of which India generally and Southern India in particular possesses so many.¹

The way in which the *menarikam* type of cross-cousin marriage is being applied by Malaiyālis (and some other South Indian castes), even though the boy-cousin may be much younger than his bride-cousin, goes to confirm my view. A formal marriage often takes place, even in such extreme cases, as that of

¹ *Mother-right in India, op. cit.*, esp. pp. 102 seq., pp. 132 seq.

a boy of five and a girl of fifteen to eighteen years. But the girl then lives with an older relative, often the father of her legal mate, as husband and wife. Her children, however, are even in such cases considered as belonging formally to her ceremonial child-husband; an institution which, I think, shows how strange, how unnatural the conception of *patriae potestas*, based on the begetting capacity of the father, must in itself have seemed to the minds of matriarchally educated people. To them it was equally incomprehensible that a child belongs to the father, a clan-stranger, whether he was the begetter or could it possibly not have been. The whole complex was the innovation borrowed from a foreign civilization which has not been thoroughly assimilated. The functional effect of this half-assimilation is a limited, illegal, but generally recognized polyandry of the successive variety. A woman, in this system, is married to her virtual husband's immature son, and moreover free to change the men with whom she lives, as often as it pleases her, though without being legally married to them. That this institution is genetically, and not accidentally, similar to legal polyandry becomes the more palpable, as the position of women in *sexualibus* is an independent, almost active one, in spite of the altogether opposing environmental influences to which the Kolli Malaiyālis are subjected. It has already been mentioned above that love affairs of all degrees and flirtations of all shades are a recognized right of a Kolli Malaiyāli married woman. F. R. Hemingway says in his above-quoted report,¹ 'You may ask a man without giving offence, if he has lent his wife to anyone'. This is not so any more now, as the Kolli Malaiyālis became only too self-conscious of their own ways of thinking and living, as we shall have to describe it below, in the paragraph on the ways of patriarchalization. But in spite of all this foreign influence, I had ample opportunity to observe that the description of 'lending one's wife to anyone else' does not correspond by any means to the actual process. There is no question of any consent which has to be obtained from the legal husband either by the wife herself or by her new lover, although his disagreement is neither in any way expected nor does it often occur to manifest itself. As mentioned before: The affection of a woman is considered to belong entirely to her and her own free decision. If she gives it to a man, well and good. If she changes her affections,—it is considered not only useless, but actually 'bad taste' to force her in any way. Hence it is that remarkably few cases of violence or civil processes occur among Kolli Malaiyālis in connection with matrimonial affairs as compared to the respective data of such cases among the fully patriarchalized peoples in the plains. Court-making of a Kolli Malaiyāli to any Kolli Malaiyāli married woman must not be taken ill, not even objected

¹ E. Thurston, *op. cit.*, pp. 434 *seq.*

to, by her husband. This is a still vividly recognized rule. But any alliance with a non-Malaiyāli is rigorously punished with caste-excommunications, sometimes even of the woman's husband, as it was shown to me. Only alliances with the Kongu Vellalas seem to be considered more leniently.¹

If a married woman starts a new liaison with another Kolli Malaiyāli man, she usually moves to his place, similarly as the legal marriage is purely patrilocal. Whether or not she returns to her legal husband later, all her children are considered as belonging to him, his family and *kulam*.

That these customs go back to a former rule of true, legal polyandry appears to be the more likely, as the restriction of exogamy, imposed on all members of the same *kulam* or exogamous sept in theory, does not apply in practice to the illegal but recognized post-marital unions, as we have mentioned above. If the introduction of the *kulam* exogamy belongs to a later stage of Malaiyāli history, as it has been suggested above, it is quite feasible that it did not take hold of the sexual relations of married women with their own caste-fellows, which have become illegal, though admittedly recognized, meanwhile. Even in these cases of unions between members of the same *kulam*, women go always to their lovers' residence.

It would thus appear that we find no traces of *matrilocality* whatsoever. I found, however, that an additional bride-price of about Rs.4 to 5 has to be paid by the bridegroom's family to the panchayat of the girl's village in those comparatively rare cases that she belongs to a village other than her bridegroom's. This so-to-say extra-normal, additional bride-price fee may be regarded as a remnant of a formerly felt reluctance against the patriarchal order of marriage; a reluctance which has died out in the case of patrilocality so far as the family unit is concerned, but not so far as that of the village. It may as well be considered as some survival of the former rule of *matrilocality* that girls among the Malaiyālis may remain eleven or fifteen days after marriage in their parents' house, during which time the husband is free to visit them for common meals with the object of 'finding out if the bride loves her husband or not'.² Similarly it seems probable that the rule, which I found observed even among the Pēriya Malaiyālis, that a woman goes for her first delivery to her parents' house, and sometimes also for the birth of the next child, goes back to former *matrilocality*. The young mother would stay three months with her parents, during which time husband and wife must not see each other. I have given several reasons in my book *Mother-right in India*³ why I think that this widespread rule is really a survival of a former *matrilocal* institution

¹ E. Thurston, *op. cit.*, pp. 425 *seq.*

² *Ibid.*, *op. cit.*, pp. 422, 423, Vol. IV.

³ *Esp.* pp. 15 and 88.

and not, as some may believe, a practical medicinal measure, meant to enable the young mother to benefit from the help and advice given by her mother during the difficulties of the first child-birth. If any further support of these my arguments was still needed, I found it indeed in the Kolli hills, for, from the rules employed at a Kolli Malaiyāli mother's confinement it becomes clear beyond doubt that no considerations whatsoever regarding the young mother's comfort or the help eventually rendered to her by her mother, or in fact by anyone, could possibly have been responsible for the young mother's return to her parents' house, but only an old, inherited usage; a cultural survival! For the process is as follows: A woman would sit down on a straw-covered stone under a tree in any open place outside the village as soon as she felt the pangs of labour approaching and would hold a string which is tied to the tree. The village people would gather round her, it is true, but without any thought of helping her. They would merely stare at the poor thing in her labours and simply watch her. Finally, they would throw a knife towards the young mother, without as much as touching her. She would pick up the knife, cut the cord from the *placenta*, make a knot in it and put the child on an old basket mat. After this a little hot water would be poured over the young mother and a hut erected on the place, wherein she stays for eight days, without getting any help whatsoever beyond the food which she is given by her relatives without, however, being touched by them directly, lest they should be polluted. After this time she may return to her parents' hut, but must still stay twenty days and nights outside on the verandah. All washing and even water-carrying throughout these periods of eight plus twenty days she has to do alone for herself. This kind of treatment (which, by the way, does not seem to do any harm to most of the Kolli women, as a doctor told me that in a circle inhabited by about 10,000 people he had to attend at one gynaecological case within five years only, whereas in a village of about the same population, down in the plains, need for this kind of help would be forthcoming practically every week!) certainly does not suggest that the young mother's return to her parents' house is caused by practical or medical deliberations; the desire to let her have for her first child-birth the loving care and experienced advice of a helpfully assisting mother!

The duration of thirty days' seclusion at the occasion of a girl's *first menstruation* was held by F. J. Richards¹ as one of the survivals pointing to a culture-historical relationship with the matrilocal civilization of Malabar, as we pointed out at the beginning of these notes. It was particularly the long period of this seclusion, supposed to be obligatory for a Kolli girl's first menstruation, which reminded Richards of similar customs in

¹ *Op. cit.*, p. 156, sub-section (5).

Malabar. But I found that, at least nowadays, the generally observed period of seclusion extends to fifteen days only. Whether this is so on account of a recently introduced adaptation to the habits of the surrounding plains-people, it is difficult to decide, especially so in view of the extremely anti-historical mentality which I found to be a characteristic feature also among the Kolli Malaiyālis. Among them, the ordinary man or woman professes complete ignorance of social regulations, religious or even merely superstitious beliefs of his own community and,—if asked about these things,—would invariably refer to the *ur-gaundan*, or the chief *pujary* of his village as the only available source of information. It is true that after the fifteen days' menstruation seclusion, the *pushpavadi*, occasionally a further half-seclusion of three days is being observed. But this, it seems, is so in the rare cases only of the physiological process of bleeding not having come to an end yet, after the fifteenth day.

Other features of the puberty-rites for girls, however, are undoubtedly reminiscent of the *talikettukalayanam* of Malabar, even nowadays. A marriage is rarely contracted before this ceremony took place, in spite of the growing influence of the child-marriage as practiced in the plains. The last one of the daily baths, to be observed during the menstruation-seclusion, is being celebrated as a regular feast, at the occasion of which the girl is nicely dressed, her hair ornamented with flowers; at her return to the common house a chicken is sacrificed; relatives, especially female ones, are invited and the poor are fed. I assumed, and still suspect, the elderly woman, who stays with the girl in the menstruation hut and procures the food for her, as having had any connection with some sort of initiation-rites which might have partly been forgotten, partly become 'a secret of the womenfolk' about which one does not speak to men any more now, under the disintegrating influence of the surrounding patriarchal cultural atmosphere. But it must be stressed, on the other hand, that all my Kolli friends were rather definite about the assertion that no advice, or introductory education otherwise, in sexual matters is being imparted to either the boys or the girls of the tribe, and that the seclusion of the girl has the sole object of keeping her polluting presence away from the house, which might otherwise be befallen by an evil. The boys, I was told, have usually already had some sexual experiences before their marriage with some other married women, and the girls know at least in theory 'all about sexual intercourse' through conversation with older sisters or other relatives.

Widow-marriage, in the full theoretical meaning of the word *kalianam*, is not practiced, being styled as *kattigiradu* only (i.e. 'tying', cf. Anglice noose, nuptial knot).¹

¹ E. Thurston, *op. cit.*, p. 425/IV.

The dead are *buried* among Malaiyālis in the way generally observed by non-Brahmin castes of Southern India. Cremation is never resorted to in the Kolli hills, also not in the cases of epidemic diseases. A Kolli Malaiyāli village has seven burial pits only, and there are no more to be dug, even if more than seven persons should die at a time. In order to make room for the newly died ones, the corpses, already lying in these pits, would in such cases be exterred, even if not yet decayed, taken to the jungle and left to the animals.

The dead body is washed and interred, on the very day of death, and a few minor gifts, such as tobacco, cigars and betel-leaves, or the like, are added along with a kind of seed after a chicken has been killed. The stones, which I saw placed on a freshly dug grave, were those lying on the last one used in the same ground. The heads of the interred bodies there pointed vaguely towards W.N.W. At the particular burial the corpse's head had nearly been laid down just in the opposite direction, had not an elderly man objected to it in the last moment. But this happened of course in the Shevroy hills among more or less disintegrated Pēriya Malaiyālis. The generally observed rule among Hindus, to bury the corpses pointing to the North, is also observed among Kolli Malaiyālis. It struck me that the women, mourning the man at whose burial I was present in the Shevroys, stepped ceremoniously round the body, whilst beating their breasts, following the direction from left to right, as in the case of an ordinary *pradakshana*, instead of anti-clockwise, appropriate for a death ceremony. The whole ceremony was accompanied by tom-tom beating, the conventional dancing-steps and exaggerated rather impersonal eulogies, executed by three Parāyars, one of whom seemed to know quite a lot of old songs, lore and traditions. The pots and *morram*, i.e. the basket mat sieve, used during the burial ceremonies, were broken or cut respectively and laid on the grave, after which all those present hurried away. I lingered for a moment to recall all details when a man rushed back, showing an excited expression on his face and asking me to join the others lest the dead man's spirit might do me some harm.

A peculiar feature connected with the Kolli Malaiyālis' burial ceremonies is the entertaining of mourning guests on the third or seventh day after the death had occurred. A pig is then sacrificed and eaten by all those present, after a piece of pork has been placed on the grave and the mourners have washed their hands over it, thus showing that they are now purified from death pollution.

8. RELIGION.

The first and foremost fact which we have to stress in connection with the transcendental world-picture of the Malaiyālis

is that 'they subscribe vaguely to the Hindu religion' only,¹ or, as we would put it in view of knowledge, to be described in the following lines, that their religious Hinduization is (or was until quite recently) a rather superficial one, under the outward cover of which something like a tribal religion of its own is still palpable. This is brought home to us, among other indications, also by the Malaiyālis' uncertainty about their being Vaisnavites or Saivites. They 'recognize the sanctity of the large Visnu temple at Srirangam and of the Siva temple at Arapulli Isvara Swami Kovil' on the Kolli hills.² Edgar Thurston even goes so far as to say that only 'certain observances... seem to point to a division into Vaishnavas and Saivas, the existence of which they deny...' Thus, 'some out of respect for Siva abstain from sexual intercourse on Sundays and Mondays, ... others for ... Visnu ... on Fridays and Saturdays'.³ Similarly we find the caste-marks of both Vaisnavas and Saivas on the foreheads of the Kolli Malaiyālis, just as offerings are being dedicated by them to both the deities.

This example of an incomplete assimilation of religious Hindu features and its application on what has probably once been a tribal religion, however, does not appear to be the most important one.

A *female deity*, belonging quite obviously to the *Mother Goddess type*, is being worshipped under the Hindu name of *Kali*. Still she seems to be essentially a pre-Hindu tribal goddess, who (as in so many similar cases, particularly of Southern India) has been simply baptized as *Kali* under the influence of Brahmin religious and general Hindu social influence.

Thurston says that *Kali* is 'commonly worshipped, but the Malaiyālis do not connect her with Siva'. I found that this is partly true even now, and was so far more by all probability in former days. Sometimes *Kali* was described to me by *pujaries* of Pēriya and Kolli Malaiyālis as the sister of Siva, as also of the various minor village goddesses, sometimes as his wife, it is true, but quite often also and particularly so by elderly people as being non-related to Siva at all. But invariably *Kali* was said to be the mother of all Malaiyālis, or more directly the mother of the three Malaiyāli brothers who divided the hills of the Salem District among themselves. Kolli Malaiyālis, whom I told that their cousins in the Shevroys consider *Kali* as the wife of the local Pēriya Malaiyāli caste-god Karairaman, laughed somewhat condescendingly as though they would mean: 'Yes, yes, these fellows over there believe that. But we know better. The mother of our three ancestors is *Kali*, worshipped at the *Kaliamma kovil*', i.e. the *Kali* temple at Kurangupatti of the Kolli hills.

¹ E. Thurston, *op. cit.*, p. 411/IV.

² *Ibid.*, p. 431/IV.

³ *Op. cit.*, p. 411/IV.

To her are monthly fruit offerings dedicated, and every third year a big sacrifice of about a hundred goats which, it is believed, increases the fertility of fields and animals. The two *pujaries* of this particular temple assured me definitely that although Arangatappan Swami of the *Gundur* village was the father, and Kaliasamma the mother of the Kolli Malaiyālis, the two had nothing to do with each other and that Kali had no husband at all. Kaliasamma was described to me by these *pujaries* as the creatrix of sun, moon, *bhumi* (the earth) and also of all that lives on it. The Swami of Gundur, on the other hand, seemed to be considered as 'father' in a more metaphorical sense only; in a way as Muslim saints of Northern India buried in some tomb that has become a common place of pilgrimage and worship, or as a Roman Catholic father may be respected by the villagers of his own or even of another religious community as spiritual father, but is still emphatically distinguished from the world-creating godhead. Quite a similar attitude towards Kali as the true mother and creatrix and towards Arapulli Isvara Swami as a 'spiritual father' was encountered by me among the local Kolli Malaiyālis, who seemed to consider this particular Siva, his Brahmin priests and his temple (see Plate 13, Figs. 3, 4) of ancient Telugu origin as a sort of spiritual possession, in spite of the fact that so many differences of opinion and outlook separated the Kolli and the Brahmin religion. An old, intelligent and, among her people, much-respected woman, however, explained to me that both Kali and Arapulli Isvara Swami were really the same; that they have created the world and all that lives on it; that they must always be worshipped simultaneously once a year in Tai (January/February) by the sacrifice of a fowl, a goat, a pig and a bison, the latter being, however, abandoned nowadays. These reports did not correspond with realities, as I had occasion to observe during a few days which I spent as the guest of the hospitable Ceylonese Brahmin there. But as the old woman, far away from the temple, herself obviously gave her statements *bona fide*, I think it can safely be taken as the expression of a sort of religious feeling which once must have been more common in the Kolli hills. Here Kali is not so much the female world-creatix, the mother-goddess alone, but rather part of a bi-sexual, all-comprising Supreme Being, who under the name of Kadavul was found to be still a living entity among religiously aware Kolli Malaiyālis, as will be described below.

But apart from this confusion between Kali and a possibly primeval monotheist conception of the Supreme Being, the female deity herself also seems to belong to a definitely pre-Hindu tribal religious system of the Malaiyālis. It occurred also to me that prohibition of temple entrance, though strictly applied to non-Malaiyālis and non-Brahmins in the Shevroy hills with regard to Mariamma temples and those of Kali's alleged husband there, Karairaman, was not observed in the case of Kali temples

proper, even though they were situated in the same temple compound as that of Karairaman. This fact may further support the theory of a pre-Brahmin origin of what is essential in the present form of Kali, really a pre-Hindu goddess, also among the Malaiyālis as among so many other castes, especially of Southern India. For it was undoubtedly Brahmin influence which brought the idea to prohibit temple entrance to certain classes of co-religionists into Southern India. Its lack in the case of Kali temples may therefore be taken as indicating an older religious stratum.

I found the images of Kali varying between highly artistic, antique bas-reliefs, which might have been manufactured at Vijayanagar, and,—in the Shevroy hills,—neolithic tools. Once I encountered there even a proto-palaeolithic implement, marked like the others by a white spot and placed in a crude stone-shrine and thus being transformed into the image of the mother-goddess. Besides small figures of *nandi*, the sacred bull, I also came across another undefinable stone animal, represented at Kali shrines which, I was told, was *periya pilli*, literally 'big tiger' but, according to my Malaiyāli friends, 'a big cat only' and not a tiger.

A goddess, Nattukuli Yetukamba, was nominated to me in connection with Arapulli Isvara Swami also as 'our caste-goddess' by the above-mentioned old Kolli woman who lived with a few of her own people among Pēriya Malaiyālis in the Shevroys, where they had found labour as plantation coolies. This goddess, however, turned out to be merely another name for Kali.

Also among the Kolli Malaiyālis, Kali is being worshipped at simple village shrines, apart from the big Kali temple of Hinduized architecture at Kurangupatti, and also by the same village *pujaries* as her sisters, Mariamma, Kongalaiaamma, Nanchiamma, Pidariamman and others, of whom Kongalaiaamma and Nanchiamma are particularly popular in the Kolli hills.¹ Kali cures cholera if properly propitiated in times of epidemics, whereas Mariamma's special field of action is, as usual, small-pox, and that of Kongalaiaamma, other fevers. All these goddesses are usually approached with sacrifices of fowl, goats or sheep. These *ammās*, inclusive of Kali, are also expected to give birth to divine children, though nothing special seems to be known about these children who become separate *ammās*, such as Pochamma, etc.

Pukalam Swami, literally the one who brings water with a bullock, belongs to a quite different type of divine person. He is a male god, supposed to be responsible for the growing of the crops. He is being approached by a separate *pujary* with gifts

¹ Thurston, *op. cit.*, p. 431/IV.

of coconuts, plantains, other fruits and milk, but not with that of animals as are the *ammas*.

Another probably non-Brahmin male god, who seems to stand quite apart from the group of *ammas*, is Vetakaren Swami, 'the hunter', now identified with Subramaniya, whose square-shaped, grass-roofed little stone-temple, surrounded by a low wall, I found in the thick jungle rather like the fairy's hut of European folk-tales. He is supposed to be the *father* of the boar in the jungle. After the capture of one of them, its head is dedicated to him at his jungle-temple and there at once eaten up by the successful hunters. The idea of the head-sacrifice in itself, as well as the simplicity and isolation of Vetakaren Swami's cult, reminded me of the *primitia* (head-) *sacrifice* among peoples belonging to the primeval culture or those related to them, as *e.g.* the Chenchus in the Deccan. This god was expressively stated not to have anything to do with the tame pigs that roam the Kolli Malaiyāli villages.

It was interesting also in this connection what an elderly chief *pujary* of four villages, by the name of Pujary Kaligaundan (see Plate 12, Fig. 2), told me about the *creation of the world* and the *nature of God*. Sun and moon, according to him, were the representatives of *Kadavul*, the Supreme Being. They ought to be worshipped daily by every Kolli Malaiyāli at his own home, whereas the *ammas* and *swamis* are being worshipped at their respective shrines and temples, and not daily, but only at the occasions of their special feasts. *Kadavul*, the Supreme Being, is, was and always will be, whereas the *ammas* and *swamis* 'came later'. *Kadavul* is neither male nor female, man nor woman, father nor mother alone, but always both in one person. How the world has been created by *Kadavul* is not known. *Kadavul* creates and also destroys, is everywhere and can do everything. *Kadavul* punishes for evil deeds after death and rewards good ones. A proverb says: 'Whatever good things you may have done, you must suffer for each evil deed which you have committed!' Such suffering after death has to be endured in a pit, full of leeches and *arani*, a kind of lizard. There does also exist an abode of happiness, the special form of which, however, appears not to be known.

I found that these beliefs, contradictory to the doctrine of the transmigration of soul, were held to be true by the undoubtedly religiously educated and much-respected *pujary*. He also consciously acknowledged them as something different from what is believed either by the Brahmins or, on the other hand, by the Christians and Muslims.

Asked about the nature and characteristics of good and evil deeds, this old man, Pujary Kaligaundan, simply stated that murder was one of the latter, and hospitality, feeding the poor or lending money to them belonged to the former. Truth and lies, cruelty or kindness of thought, or any benevolent

actions towards animals do not seem to be regarded either way. Cows, as already mentioned, were not killed, simply because 'it was not done', no special reason for this restriction being either known or searched for, even by this man who was high above the general Kolli Malaiyāli level of religio-philosophical awareness.

An Indian mission doctor of wide experience told me that in the days when Pujary Kaligaundan was still young, the habit of telling lies was practically not yet known to the Kolli Malaiyālis. I came to understand from some youths, Christianized plains-people who happened to be also present, that 'in those days the Kolli Malaiyālis were still too uncivilized and too backward' to tell lies . . .

Kaligaundan Pujary, to his advantage it seems, was not yet touched to any conceivable measure by the non-Malaiyāli's outlook on this life or the next to come. He explained in detail how the chief duties of a *pujary* are concerned with the driving out of evil spirits and with the preparation and dedication of sacred ashes.

These *evil spirits* belong to a third realm of that part of the world which generally remains invisible to humans. They are quite distinct not only, of course, from Kadavul, the Supreme Being, monotheist creator of the world in all essentials, but also from the richly populated world of *ammas* and *swamis*, such as Kali, Mariamma, Kongalaamma, Nanchiamma, Paradiamma, Pillaiyar (i.e. Ganesha), all of whom 'came later', to use the *pujary's* own words and sequence of recounting. The evil spirits move about and cry aloud, so that the *pujaries*, but sometimes even ordinary people, can hear them. Asked whether he had heard one himself, he smiled as though amused at the very idea that he should possibly not have had this experience and narrated in a most naturally impressive and very convincing manner:—

'Of course! Not long ago one was sitting so near to me as you are now, and shouted violently!'

Sometimes the evil spirits become visible in the shape of animals, such as pigs, dogs and the like; sometimes also in those of humans, disappearing on being approached. They dwell in big trees near lakes and graves, 'because they are the spirits of humans who met with violent death'. The souls of women, who die at child-birth, are not, as among several castes in the plains, usually dreaded in this connection by the Kolli Malaiyālis. Why a killed person's soul should cause mischief among those of the living ones who in no way were responsible for their former deaths,—this was not explained; but 'it is a fact!'

Malarious fever, deliria or swellings of the body are ascribed to them. The *pujary* visits the patient, tries to fall in a trance, then announces the sort of sacrifice,—usually of a fowl or a goat,

—which the spirit demands, and then considers his mission as fulfilled.

The *Shamanistic elements* in the Kolli Malaiyāli *pujary*, however, become manifest also in other ways. Dignity and office of a *pujary* is hereditary in the patriarchal line, but it is not necessarily the eldest son of a *pujary* who becomes his successor, rather the one to whom it is revealed in a dream that he has been chosen by the divine power to officiate as the priest, who will fall into a trance, losing to all appearances his senses, or at least his consciousness, meanwhile uttering divine commands, as though some invisible power would speak through him as its medium. In the case that more than one among several brothers should claim to succeed their father as *pujary*, on the ground that they are all falling prey to such fits, an ordeal of either jumping three times through a big fire or swallowing fire would be arranged to decide their dispute. If, on the other hand, a *pujary's* son (or sons) should fail to produce such fits altogether, their entire generation would then be omitted in the line of succession, giving way temporarily to another 'able' man. Should the next generation too be void of the quality to lose the senses and utter words, as though coming from an invisible power, the whole family may lose its potential *pujary*-qualification.

A newly invested *pujary* does not seem to be initiated into anything like an esoteric knowledge, but is supposed to be entirely guided by the deity. It appears, however, that every young *pujary* has accompanied his father from early childhood, thus adopting consciously, as well as subconsciously, what his father thought and felt about the nature of religion and its priests.

I did not come across any religious significance or taboo attached to animals, apart naturally from the Hindu Brahmin prohibition of killing cattle. Only one rather vague story was told me, in this connection, concerning a 'dog of the jungle, smaller than ordinary jackals, known by the name of "senay", i.e. the red dog, which is worshipped like a god, because it is such a cruel animal that it kills one thousand sheep in a minute and frightens even elephants'. This dog seems to be under a taboo 'because everybody who harms the "senay" would be killed along with his family'. I was unfortunate (or perhaps fortunate!) not to have met personally this fabulous member of the *canidae* family and thus I am still in the dark whether it is a kind of jackal or an altogether imaginary animal on which so much honour on the virtue of mass-killing is being heaped. The 'senay' seems to take the place and to get a somewhat similar treatment among the Kolli Malaiyālis, as does the cobra among the plains-people. I did not find any regard paid to snakes by the Kolli Malaiyālis and was also told by plains-people that they do not honour them, which seems rather an outstanding, though

negative, quality in an Indian caste. I could not find any really totemistic attitude of mind towards animals.

The Shamanistic obsession of the *pujary* is often effected by the *munni*, a particularly malevolent kind of mefe spirit, supposed to damage the crops, should his commands not be carried out properly, which the obsessed *pujary* utters before the first ploughing of the fields in June, *i.e.* after the dry season. These commands consist usually in a goat-sacrifice or that of a pig, or only of a fowl. The blood is mixed with rice, offered to the *pujary* who drops it either into a rivulet, the fields to be cultivated, or throws it simply somewhere into the bushes of the jungle. These types of sacrifices, I think, cannot be taken as genuine fertility-rites, as they are rather meant to avert any evil that might befall the crops, instead of actively helping their growth.

After harvest two to three measures of rice are usually being offered to the *ammas* and *swamis*.

During droughts *puja* is made sometimes in front of the people's dwelling-houses to *Varuna Bhagvan*, asking for rain, but without any special sacrifices. R. F. Hemingway, writing on the Malaiyālis of the Trichinopoly District,¹ states that 'if they want rain, they pelt each other with balls of cow-dung, an image of Pillaiyar (Ganesha) is buried in a manure-pit and a pig is killed with a kind of spear. When the rain comes, the Pillaiyar is dug up . . .' I could not find any of these or, in fact, any genuine rain-charms or fertility-rites otherwise among the Kolli Malaiyālis and was merely informed once by a Pēriya Malaiyāli of the Shevroy hills that *Draupadiamma*, along with Mariamma and Perumal, is asked for obtaining rain. Her polyandrous character has not been lost, the names of the husbands being given as: Arjuna, Nagulan, Biman, Saka Deva and Darmar. The special linking of the polyandric Vedic goddess with prayers for rain may be held as an indication of a former rule of legal polyandry or its connection with a special goddess. (See also the paragraph on megalithism below, where the problem of Draupadi is discussed in connection with the term 'Pāndiyas'.)

In cases of acute danger, *Kadavul* the Supreme Being is addressed with spontaneous prayers for help, but this is not done if fertility or good crops are desired.

Sun and moon, being the 'representatives of *Kadavul*', are supposed to be daily worshipped with a simple prayer, a *namaskaram* of indebtedness only, without any intention of thereby increasing fertility or rain. This was a rule, however, which I could not find carried out in practical life any more. (See the above paragraph on the Kolli Malaiyālis' daily routine.)

¹ Quoted by E. Thurston, *op. cit.*, p. 434/IV.

Quite a different complex of ceremonies, on the other hand, deserves mention in connection with the idea of magic fertility. This is the *yerothu attum*, the bull-dance or bull-fight, celebrated after the Pongal festival in January by the Malaiyālis as much as by the plains-people, though undoubtedly varying in spirit as well as letter of the ceremony. A full description of it, therefore, does not seem to be justified at this place, the more so as it can be found in F. J. Richard's and E. Thurston's oft-quoted classical reports. But certain features of the 'bull-dance', connected with the problem of magic fertility, may be recollected here.

The bulls of a village are brought into a small enclosure, erected near the open place in front of the Maraiamma kovil (temple) where village ceremonies take place. After various ceremonious preparations carried out by *pujaries* and the village elders, one by one of the bulls in succession is singly taken out of the enclosure and led across the open place and back by a crowd of fifteen to twenty young men. They hold a long rope, standing on both sides of the bull in regular intervals, whilst its head is stuck into a fixed noose in the middle of the rope. Moreover there are two men, one in front and one behind the bull, urging him to run as quickly as possible. I found one of these two in the Shevroys to be the Karairaman *pujary*, disguised in felt-clothing and besmeared with sacred ashes, a veritable Malaiyāli harlequin, carrying a long bamboo on to which a piece of goat skin was fixed, with which he teased the bull rather roughly but without inflicting actual cruelty on it. He also touched the bull's sexual organs deliberately with that goat skin. On this occasion, as in the case of one bull falling on the ground and being dragged on by the men holding the rope, all onlookers, and especially so the women, it seemed, burst with laughter, similarly as they appeared to half-dread and at the same time tremendously to enjoy the jokes and mock-embraces of the disguised young *pujary*, which he carried out as a sort of pastime during the intervals in between the various bull-dances. If one bull really ran lustily and rather dragged the boys holding the rope than being dragged by them, the latter screamed with joy, the conch-shell blown by an old man gave a particularly loud and long signal on the bull's arrival at the other side of the open place and his dance was repeated twice, or even three times.

The rope used for holding the bull must be manufactured of deer-skin only which has been acquired in jungle-hunts. Another link, connecting the bull-dance with hunting, seems indicated by the rule permitting the former execution among the Kolli Malaiyālis only, if a hunt has been successful, which is regularly carried out on the day *karinal*, i.e. the second day of *madu pongal*, the bull feast.

After the last bull has executed its 'dance', all the fellows who had held the rope prostrate before the *ur-gaundan* and the village elders. The rope is placed upon their neck and those among them who did not fully prostrate themselves, I saw thoroughly pushed and kicked by the gay *pujary* in his domino of felt and ashes. The prostrated men finally ask to be forgiven for whatever wrong they might have done during the last year and pray for a rich multiplication of the bulls in their village. The *ur-gaundan*, as though speaking on behalf of the *swami* (i.e. Karairaman in the Shevroys), grants both: forgiveness of sins and fertility of the cattle. A procession behind the *pujary*, who is riding on two bamboos which were carried by four men of the village; and his ceremonial bath with coloured water administered on him by an elderly and two younger women, concluded those of the bull-dances which I had occasion to observe.

Apart from these tame bull-fights, *holy bulls* are dedicated to the 'Srirangam temple and are taken in procession round the temple, with drums mounted on their backs, led by men with feathers stuck in their hair . . . by Vaisnavits' whereas 'Saivites set free bulls, called *poli yeruda* in honour of the' Arapulli Isvara Swami in the Kolli hills.¹ There I found bas-reliefs of men, carrying slightly curved sticks over their shoulders who, I was told, were Parāiyars. They had once hunted the holy bulls and, as punishment, were turned into stones.

It may thus be said that the idea of world creation, as well as that of fertility, appear to be equally connected with at least two fundamentally different layers of religious conceptions.

(a) The *Creator of the world* is held to be Kadavul,² the monotheist Supreme Being, by an esoteric minority of *pujaries*, which seems to preserve elements of a very early stratum of primeval civilization. More generally the *mother-goddess Kali* is held responsible for having brought into being sun, moon, *bhumi* (earth) and all that lives on it.

(b) Far more complicated is the network of contradictory beliefs connected with *fertility-rites*. The fertility god *par excellence*, who is held directly responsible for the crops and to whom fruits and milk are offered instead of animals, as to the *ammas*, is Pukalam Swami, a male god. It is apart from a certain connection with Maraiamma and her temple, also chiefly with a male god (Karairaman in the Shevroys, Arapulli Isvara Swami in the Kolli hills), that I found those elements of the bull-dance connected, which appear to have the character of fertility-rites. Even Vetakaren, the 'father' of the jungle-boar, is a male god, similarly as Pillaiyar (Ganesha), whose image is

¹ E. Thurston, *op. cit.*, p. 432/IV.

² Compare with T. R. Sessa Iyengar: *Dravidian India, Madras*, 1933, p. 117.

said to be buried in manure-pits during droughts in order to attain rain, or Varuna Bhagvan, who is addressed in prayers for rain and the *munnis* to whom sacrifices are being made to avert evil from the crops.

The entire Kali-complex, *i.e.* that of a mother-goddess *par excellence*, on the other hand, contains undoubtedly elements of fertility-rites. The offerings to her of fruits once in a month, and of about a hundred goats or sheep once within three years at the temple of Kurangupatti, are supposed to increase general prosperity and the fertility of the fields in particular. Special prayers are being addressed to Draupadiamma, whose polyandrous character might here suggest connection with a pre-Hindu deity in spite of her present Vedic name. Also the rites of pelting each other with cow-dung, or the burying of the Pillaiyar image in a manure-pit, are undoubtedly reminiscent of fertility and rain-charms, typically connected with female deities in a matriarchal civilization. The July-procession and following mud-throwing ceremony in honour of Bhadrakali, carried out in Malabar,¹ may be mentioned here as one example only.

But also Nattukuli Yetukamba, perhaps the prototype of the Kali who is connected with the bull-dance, is a female deity, similarly as there are quite palpable elements of a fertility-deity in Mariamma and the other village *ammās*.

The male and the female elements in the fertility-deities seem to be separated by origin and functional meaning alike, but to be connected only in the case of the bull-dance complex.

Traces of *ancestor worship* do not seem to differ from the forms generally observed by patriarchal Hindus.

Cradles and roofs, other than those covered with grass, are taboo to a Kolli Malaiyāli; the latter rule having the good effect that Kolli huts are cool in the heat and warm in the cold instead of *vice versa*, as it is in the case of tiles, not to speak of the tin-roofs so popular among plantation coolies.

Apart from those few proverbs already quoted, I did not come across any popular sayings that could be taken as indications of a mentality peculiar to the Kolli Malaiyālis only or as differing from that of the plains. In proverbs like: 'Without the blossoming of the clouds in the sky, there will be no blossoming of flowers on the earth' quite a poetic gift manifests itself, the more so as the Tamil wording suits the meaning still better than does the translation. Another proverb which I noted seems to be borrowed from the plains: 'No matter what kind of *dorrai* (master) comes to the *nadu* (village-group), the task of carrying grass cannot be taken from the Parāiyar'.

The comparatively striking lack of religious awareness, interest and knowledge which differentiates the Kolli Malaiyāli

¹ E. Thurston, *op. cit.*, p. 396/V.

layman from the *pujary*, especially from certain individuals among them, although noted already once, deserves mentioning again at the end of this paragraph.

A group of myths, connected with megalithic graves of the Shevroy hills and with a race of miniature dwarfs, is described in the short paragraph on *megalithism* below.

9. MEGALITHISM.

Megalithic tombs, marked on the surface by stone circles and dolmen-like structures, are fairly numerous in the Shevroy hills. I opened one containing fragments of the red earthenware urns, iron tools and patches of coloured sand, usually to be found in these tombs.

An apparently very old, roughly paved staircase-like pathway, 5 to 7 paces broad and about 170 paces long, was also encountered by me. This paved road leads up a hill towards a plateau where several of the megalithic tombs are situated. Similarly I came across terraced ground, obviously cultivated at one time but now covered with jungle, which points to an old, probably pre-Malaiyāli agricultural population in the Shevroy hills.

Although I also found one similar stone circle in the Kolli hills, the description of these megalithic remnants cannot be considered essential to our present problem and must therefore be omitted here.

But the *myths* connected with the megalithic monuments of the Shevroys may throw light on the history of the entire Malaiyāli tribe and should hence be recorded briefly, in spite of the fact that they were found current among the Pēriya but not among the Kolli Malaiyālis.

The megalithic monuments of the Shevroy hills are called *pandiyan kallu*, i.e. Pāndiyan stones, by the Pēriya Malaiyālis. In spite of the more or less correct knowledge about the former existence of the historic Tamil kingdoms of the Chēra, Chōla and Pāndiya among the Kolli Malaiyālis, their far more sophisticated and partly Hinduized, partly Europeanized Pēriya cousins of the Shevroy hills believe that these Pāndiyans, who erected the stone monuments, were dwarfs. Some imagine their height to have been a span or two only, others think they were as big as ordinary children are nowadays. These dwarfs were agriculturists but used for ploughing rabbits instead of cattle and grass roots in place of ropes, according to Malaiyāli belief. In spite of their miniature size they moved the heavy stone-slabs of about 6' to 4' which could be lifted by three full-grown Pēriya Malaiyāli men only, when I opened one of these megalithic graves. The Pāndiyan dwarfs were also very rich and 'consequently very greedy', according to the Pēriya Malaiyālis. One day Kadavul made gold and precious stones fall from the sky,

When the Pāndiyans rushed to collect all for themselves, without leaving anything for God, Kadavul caused a fire-rain in order to destroy them. They had, however, their megalithic 'air-raïd shelters', where they managed to hold out quite a time, until they died of heat. After this, there were no traces left of them, besides the stone monuments, and when the Malaiyālis arrived in the Shevroy hills, the Pāndiyans were already extinct.

If this myth conveys any historic truth in disguise, we must not expect much remnants of the former megalithic civilization among the present Malaiyālis. And this is in fact so, on the whole. The alleged former sacrifice of a bison at Arapulli Isvara Swami Kovil in the Kolli hills, the form of village shrines very much like the megalithic stone monuments, only by far smaller, and the extensive use of paved terraces, various stone-walls enclosing and even subdividing the villages, neatly constructed stone-doors therein, and above all, the large stone-seats on the village squares (see Plate 10, Fig. 3) which are meant for the use of respected guests only,—all these are features certainly reminiscent of megalithic cultural elements. But as I did not find them connected with any typically megalithic forms of traditions, social laws or religious conceptions, they are too vague to be taken as any definite indication for a surviving megalithic civilization.

The name Pāndiyan stones used by Pēriya Malaiyālis for the megalithic monuments in their neighbourhood, moreover, seems to indicate a connection with the highly advanced, certainly post-megalithic, historic Tamiḻ kingdom of the Pāndiyans only. But another possibility must also be kept in view. This word might be nothing but a misunderstood application of the name Pāndava, i.e. Draupadi's polyandrous five husbands. This feature of Hindu mythology may have appealed to Malaiyāli imagination at a time when they were still nearer to their own, undoubtedly once also polyandrous, civilization and then got mixed up with the historic name of the Pāndiyans. The fact that a goddess by the name of Draupadiamma with her five husbands is, as we have seen, being addressed with prayers for rain by the Pēriya Malaiyālis may be taken as an instance supporting this theory.

And so may also be the (former) tribal name *Keralan* which I found (as mentioned above in the paragraph on myths of origin) that the Malaiyālis themselves consider to represent a place whence they came to their present homes in the hills of the Salem District.

These suggestions, though undoubtedly unsatisfactory and far from being anything in the way of a proved working hypothesis on the problem of the Malaiyālis' connection or non-connection with the ancient megalithic civilizations of Central and Southern India should, I think, still be kept in view until

any definite solution of the vast culture-historic problem of megalithism in India as a whole will have been achieved.

10. WAYS OF PATRIARCHALIZATION.

A word or two may still be added to our general observations on the therein-often-mentioned process of patriarchalization before we try to systematize the results of culture-historic observations. The complicated *mixtum compositum* of the present Kolli Malaiyāli civilization, like that of so many other Indian cultural units, has been created by the disharmonious and inconsequent application of extremely patriarchal ideas and laws on the essentially matriarchal system of society- and family-life which still survives here in more than one respect.

I certainly do not pretend to say anything new in stressing that this process of passing from one type of social order to another is usually done more or less unconsciously by the individuals concerned. They adopt new ideas from neighbours or invaders, without usually realizing that by so doing their former social system gets disintegrated. In spite of the unconsciousness of this process, we must still call it a battle, fought between two orders of life, two systems of society. It is a battle in more than a merely metaphorical sense, for both systems try to maintain their superiority, both systems exercise shrewd tricks to keep or establish their authority, although these tricks are often executed by individuals who remain unconscious of the drama in which they are taking an active part.

To give one example. The Kolli Malaiyālis recognize more or less vaguely the authority of a *guru*, a religious head, living in the Chetty hills. This man ordered, two years ago, that the Kolli Malaiyālis must give up all of their customs which differentiate them from the plains-people. Their women must adopt all-covering, coloured sarrees, replacing their practical and hygienic white clothes, the independence and self-determination in choosing another mate, if they are dissatisfied with their marriage, should be denied them and the eating of pork must be abandoned.

I do not think that this guru in ordering this acted consciously with a view to destroy the last survivals of the ancient matriarchal civilization of the Kolli Malaiyālis. He simply felt that the surrounding people laughed at these features of Kolli Malaiyāli life and ridiculed it, and in the mere logic of adaptation to the general order (which is patriarchal) he tried to eliminate the features that opposed it (which are of matriarchal origin). The Kolli Malaiyālis, on the other hand, quite instinctively fell back to the typically democratic order of their matriarchal civilization, when they convoked an assembly of all *ur-gaundans* who discussed and rejected the guru's orders, at least for the time being. They were as little conscious of their

reacting on behalf of the one world-order as was the guru of acting for another.

And still, as soon as the egotism of the acting persons comes in, they learn pretty soon to look after their interests as shrewdly and ruthlessly as any humans do, thereby unconsciously serving the order with which they are connected just as much as if they would consciously try to propagate it. We have seen that a Malaiyāli girl may not even keep the ornaments which her own father has given her as a present during his lifetime, but that she must after his death 'return' them to her brothers. Similarly, the patriarchal rule has been established since the opening of the Shevroy hills for coffee-plantation, according to which the daily wages which a girl earns as plantation cooly do not belong to her but to her father or husband, as the case may be; whereas the daily wages which a boy earns are considered to be indisputably his own possessions!

Why then, we may ask, is it that the patriarchal principles always outrule the matriarchal ones and that the personal egotism of unmarried girls, wives and mothers always fails to stand the test, at least in these days and during the preceding centuries of Indian history?

There are, of course, a thousand and one answers to this question, which to discuss, however, is not the place here. So far as the cultural history of the Kolli Malaiyālis is concerned, one point only deserves special stressing. The superiority of the financially stronger and sometimes even literate plains-people is generally accepted without questioning by the simple hill folk, whose moral superiority and simple, but more or less unconscious, righteousness of soul, heart and mind counts as little in their own eyes as it does in those of their condescending brethren in the plains. Now that these plains-people happen to be thoroughly patriarchalized through waves of foreign, patriarchal invasions, their criticism in all matters of social and religious law is usually accepted without any further reasoning by the 'backward community in the hills'. I remember one conversation in which an old Malaiyāli *pujary*, a benevolent Indian gentleman of extensive knowledge, and a few not very deeply educated fellows from the plains were involved, and which served me as an example of what I mean here. The social laws, marriage regulations and, in connection with this, the freedom which the Kolli Malaiyāli women enjoy in changing their mates and handling their own matrimonial affairs themselves, were discussed. Much as the well-experienced Indian gentleman and myself tried to show our respect for a time-honoured and indigenous system, explained to us in all the simplicity of his heart by one of its adherents, the other men from the plains, who unfortunately happened to be present, simply burst with laughter at each and every word uttered by the Kolli Malaiyāli on the indigenous marriage system. They too did not

intentionally ridicule the remnants of the matriarchal civilization, nor consciously employ the propaganda methods of intimidation whilst doing so. But the effect was certainly the same as though they had acted under the instructions of a modern, psychologically proceeding party propagandist! Much disturbing as these interruptions have been in the actual investigations of that day, they illustrated on the other hand how public opinion is and most probably was formed, how foreign ideas are and were established even in the remotest corners and why it is that in India, the country of time-honoured, old traditions and customs, just those are dying out so rapidly which belong to a matriarchal circle of civilization.

11. CULTURE-HISTORIC CONCLUSIONS.

Under a thick layer of daily strengthening patriarchal Hinduization, we found a number of matriarchal elements in the social organization, even the actual functioning, of present Malaiyāli life. The independence and self-respect conceded to and enjoyed by women, not only in their position within the family's daily life and economy but also in relation to the other sex, rank first in this respect. Such independence becomes particularly manifest in the so-called *vipu* system, allowing flirtation of any degree and a frequent changing of mates and being moreover combined with a rigid way of enforcing the *menarikam* form of cross-cousin marriage, even in cases when it means that a grown-up girl is to be married to a child and then actually cohabits with a relative of her legal husband (often his father). This, and the fact that all children of a woman, no matter how many actual mates she may have had, are legally ascribed to her first and so-to-say official husband, suggests in itself a superficial application of patriarchal laws of inheritance on an essentially polyandrous and matriarchal society. The acceptance of the bride-price by the girl's maternal uncle, not so much in his quality as the father of the would-be *menarikam* cross-cousin bridegroom but as the guardian of the girl, furthermore strengthens other indications for the former existence of a central position of the maternal uncle in the Kolli Malaiyāli family. The return of a girl to her own parents' house for her first, and sometimes even the next following confinements, and the additional bride-price which is to be paid to the bride's village community if a boy takes a girl from another village instead of from his own, may be taken as remnants of a former rule of matrilocality.

Certain peculiar features, especially the formerly observed long period of seclusion during a girl's first menstruation, suggest not only puberty- and initiation-rites for girls generally but, as Richards stressed already more than twenty years ago,¹ also

¹ *Salem District Gazetteer, Madras, 1918, op. cit.*

relationship with the matriarchal civilization of Malabar in particular.

A number of characteristic features in the dress and ornaments of the Kolli Malaiyālis, as well as their abstinence from tattooing, support this hypothesis.

Apart from the Hinduized and modern patriarchal, the somewhat older and now overlaid matriarchal, cultural strata in the family and daily life, there are also patriarchal elements in the tribal organization of the Kolli Malaiyālis which, at first sight, may suggest connection with a totemist civilization. These are the *kulams*, exogamous septs, which divide the tribe into sections, other than the more outstandingly palpable local ones. Genuine totemist features there being absolutely absent however, these septs with their functionally subordinate rôle may rather be taken as the floating and isolated product of an indirect influence which a remote totemist and patriarchal civilization may, before the advent of Hindu Brahmin culture, have had at one time exercised on the then matriarchal Kolli Malaiyāli life.

In contrast to this simple picture, as shown by the analysis of the social life, we find a more complicated one in the layers which have been preserved within the *religious system* of the Kolli Malaiyālis. This is none other than we should expect it to be, for it is only in the usual trend of events that the greater conservatism of religious institutions preserves many an element of overlaid, antique cultures, the traces of which have been extinct in the social or economic sphere. Thus it seems quite in keeping with general ethnological observations that we find (a) the *Brahmano-Hinduized* modern *religion* (apart from a few Christian converts, chiefly orphans and outcaste individuals), (b) the importance of the *ammās*, above all that of *Kali*, an unmistakably matriarchal mother-goddess, *i.e.* two entities which appear to represent the two layers, corresponding to the two above-mentioned ones. There are no traces whatsoever of a totemist nature in religious life, but, on the other hand, (c) a third group of probably much older religious conceptions in the Kolli Malaiyāli world-picture. This is the virtually *monotheist*, though more or less esoteric, Supreme Being *Kadavul* who combines, among all other qualities, also those of father and mother, of man and woman, in one person.

Is this complex merely borrowed from such comparatively recent sources as the historic Tamil kingdoms with their lofty and basically monotheist ideals as we find them, *e.g.* expressed, in the *Kural*?¹ Or is it rather that we have here encountered a last living stream of religious thought which is still flowing from the same fountain source from which the later historical Tamil

¹ Compare to this: T. R. Sesha Iyengar: *Dravidian Indian, op. cit.*, p. 117.

civilization has sprung? The Kadavul-conception of the Kolli Malaiyālis reminds us in all essentials of the original monotheism which has been found to be characteristic in the primeval civilization.¹

If this was the source of the present (esoteric) Kolli Malaiyāli conception of the Supreme Being, it may well be that the male gods of fertility, the many male rain-giving deities and the malevolent male spirits too, which are neither totemist, typically matriarchal, nor it seems originally of Hindu Brahmin extraction, belong to a pre-matriarchal layer of South Indian cultural history.

Should it have been so, we had to consider them as abstractions from the idea of Kadavul, the Supreme Being, as entities which, later on turned into male spirits, were as incongruously adapted to matriarchal conceptions of the godhead as they have only recently been assimilated into the Hindu pantheon.

Assuming that a grain of truth might be in this working hypothesis, we had to add the last survivals of a primeval monotheist and probably bilateral civilization and a transitory, undefined stage to the indirectly manifested totemist influences on the strong matriarchal and, finally, the now domineering patriarchal Hindu Brahmin layers of historically successive civilizations, manifested in the Kolli Malaiyāli culture.

To this colourful picture we may have to add a few rather strongly represented *Shamanistic elements* being manifest in the conceptions and the mode of election which prevails among the Kolli Malaiyāli priests. Though criteria of a direct connection with any of the typically Siberian types of Shamanistic institutions or usages have not been encountered by me so far, the possibility must still, I think, be kept in view that the many and strongly stressed Shamanistic traces of Indian tribal religions in general, and those of the Salem Malaiyālis in particular, may go back to perhaps pre-Aryan but none the less Siberian intrusion of nomadic herdsmen. Or should these elements have originally migrated from India to North Asia?

The custom of letting loose sacred bulls, *poli yaruda*, in honour of the Arapulli Isvara Swami Kovil in the Kolli hills may, in this connection, be compared to that of letting loose the consecrated stallion which was to be killed after one year of freedom in the Central Asiatic horse-sacrifice of peoples belonging to the circle of nomadic herdsmen civilizations, as well as in the Indian *ashvamedha*,² the ceremonious horse-sacrifice.

The undoubtedly polyandrous and matriarchal origin of the custom among the Salem Malaiyālis to allow a grown-up girl to

¹ Compare W. Schmidt: *Vom Ursprung der Gottesidee*, and W. Schmidt and W. Koppers: *The Culture-historical Method of Ethnology*, New York, 1940, *op. cit.*

² W. Koppers: *Pferdeopfer und Pferdekult der Indogermanen*, Wiener Beiträge, Vol. IV, Vienna, 1936.

marry a child-boy but actually to live with an elder person, often the boy's father, would, in this connection, gain special interest with regard to a similar custom among the ancient Southern Slavs and partly those of Russia, known as the *snoháčestvo*. Dr. Zdenko Vinski holds this custom of the Slav joint family to be a typically patriarchal feature which was common to practically all nomadic herdsmen tribes of Central Asia and their later descendants.¹ New light may on this particular feature of that circle of civilizations be thrown by the example of its matriarchal origin here among the Salem Malaiyālis, which suggests also a similar interpretation of the same custom among other Indian castes, if not in other parts of the world as well.

Just the same may also be said with regard to the matriarchal character and origin which became manifest in the analysis of the *menarikam* type of cross-cousin marriage amongst the Kolli Malaiyālis and the rôle played by the *maternal uncle* therein.

These two world-wide features appear more closely connected with a matriarchal civilization if seen in the light of our local observation, provided that the latter should be typical, not accidental, historical developments. The strong representation of Shamanistic features in Malaiyāli religious life strengthens theories connecting an early stage of Central Asiatic nomad herdsmen civilizations already with some layers of pre-Hindu India in general, and with matriarchal Indian culture in particular. The hypothesis of an original migration of the Scythian peoples from India to Northern Asia, already suggested by Caldwell's philological observations² of Dravidian-Scythian affinities, may find further support here, in this fact.

12. FINAL SUMMARY.

The Kolli Malaiyālis are at present the least Hinduized and Europeanized of the three sub-tribes of the Malaiyālis in the Salem and Trichinopoly Districts. A number of the cultural survivals which have been kept alive with them point to a matriarchal civilization generally and to historic connections with the culture which is now prevailing in Malabar, particularly.

The Malaiyālis seem to have immigrated to their present hills at a comparatively late period of the historic Tamil kingdoms of Chōla, Chēra and Pāndiya. At that time the Kolli Malaiyālis seem to have been in a somewhat closer contact with the plains, as *e.g.* their Pēriya Malaiyāli cousins of the Shevroy hills who came under a Hinduizing and directly Europeanizing influence only so late as the opening of coffee-plantation in their hills,

¹ *Die Südslavishe Grossfamilie in ihrer Beziehung zum Asiatischen Grossraum*, Zagreb, 1938, pp. 64, 94.

² Rt. Rev. Robert Caldwell, D.D., LL.D.: *Comparative Grammar of the Dravidian Languages*, 3rd Edition, London 1913, particularly pp. 317 seq., pp. 414 seq., pp. 610 seq., pp. 633 seq.

about one century ago or so. Hence we find that *e.g.* the rectangular houses of the Kolli Malaiyālis are less 'primitive' than the beehive huts of their otherwise much more sophisticated and Europeanized Pēriya cousins of the Shevroy hills.

The Kolli Malaiyālis may be taken as a somewhat modified survival of an agricultural community in an out-of-the-way part of the historic Tamil kingdoms, some time after the fourth century B.C.¹ Some of the functionally palpable remnants of this matriarchally determined civilization among the Kolli Malaiyālis, such as *e.g.* the good and dignified position not only of mothers, but also of married women generally and even unmarried girls, the democratic equality of the general economic standard of life and the natural inclination towards neatness, cleanliness and veracity, seem to prove the correctness of the reports given on these points by the famous Chinese travellers Fa Hian (401-410 A.D. in India) and Hiun Tsang (630-645 A.D. in India) who could still praise these things as typically Indian virtues. The study of the functional working of Kolli Malaiyāli life may therefore be said to be of direct concern to the student of South Indian cultural history.

Apart from this, there seem to be several traces of many much older, partly pre-Malaiyāli, cultural layers still traceable.

(1) A religiously preserved very old stratum of *primeval monotheism*; a layer, however, of which no other traces can be found in the social and economic sphere of the present Malaiyālis (the problem of the use of a '*digging-stick*'—like tool being not yet satisfactorily solved).

(2) A religiously very intensively expressed, but also sociologically quite strongly marked, layer of an *early matriarchal peasant civilization* which might have originally been connected with the agricultural classes of the pre-Aryan and highly advanced Indus civilization, the aristocratic classes and towns-people of which we may rightly connect with the ancestors of such communities in modern India as the Rajputs² or the Nayars of Malabar.³

It is, however, more probable that the matriarchal remnants of Malaiyāli life go back to a still older, a so-to-say pre-Indus, type of South Indian mother-right civilization. This becomes the more probable as we find—

¹ H. G. Rawlinson: *India*, London, 1937, p. 178: '... the first reference to Dravidian India which can be traced with any degree of accuracy occurs in the grammarian Katyayana (fourth century B.C.) who mentions the Pāndiyas and Chōlas. Megasthenes, the Greek envoy at the court of Chandragupta Maurya, knew that the Pāndiyan kingdom comprises the portion of India which extends to the sea, and possessed a powerful army and great wealth derived from its pearl-fisheries'.

² O. R. Ehrenfels: *Mother-right in India*, Hyderabad-Deccan, 1941, pp. 135-158 *seq.*

³ *Ibid.*, pp. 58 *seq.*; pp. 171 *seq.* and pp. 179 *seq.*

(3) simple and comparatively vague, indirect influences from a probably remote *totemistic civilization*, to have been somewhat disintegrated, before they have reached the Malaiyāli civilization as a probably superficially superimposed cultural entity.

(4) *Megalithism* is very remotely traceable in one or another of the architectural customs of the Malaiyālis, but plays a rather outspoken rôle in the myths and folk-tales of especially the Pēriya Malaiyālis, with whom the builders of the ancient megalithic tombs figure as a race of fabulous dwarfs, extinct before the advent of the Malaiyālis, by chastisement of God.

(5) Pronounced *Shamanistic traces* in the customs and conceptions of the priests, the institution of setting free sacred bulls, and an arrangement of marriages, reminiscent of the Slav *snohačestvo*, seem to point to an early but possibly non-Hindu pre-Aryan connection with some *Nomadic Herdsmen Civilization* from Siberia.

The matriarchal share in the origin of this *snohačestvo*-like marriage custom of grown-up girls with immature boys, like the one in the *menarikam* type of cross-cousin marriage among the Kolli Malaiyālis, not only adds further proof to the theory of the matriarchal origin of the present Malaiyāli civilization, but may at the same time throw light on the general significance of similar, related customs inside and outside of India.

If this be so, the *snohačestvo* of the ancient Russians, South Slavs, Caucasians, Iranians and many more other peoples, belonging to the circle of the *Nomadic Herdsmen Civilization*, may then be taken as proof of the early presence of matriarchal elements in all these groups, similarly as the *menarikam* type of cross-cousin marriage and as that of a domineering position of the mother's brother in communities where we find it prominently developed. This cultural configuration again might then support the otherwise suggested theory of an original migration of the Scythian languages speaking peoples from India to their present homes in Northern Asia.

The *ways of patriarchalization* of Kolli Malaiyāli life show how, quite unconsciously and without any outspokenly hostile tendency or malice, still the harmony and creatively democratic mentality of a matriarchal civilization is being systematically disintegrated where it comes in contact with the patriarchal order of things, and thus how it would need a conscious effort on the part of the ideals, for which the matriarchal societies stand, should they try to re-establish some of the cultural achievements through which they have once, undoubtedly, contributed to the more peaceful civilizations which were based on human co-operation and mutual understanding.

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FIG. 1. Terraced rice-fields in the Kolli hills.



FIG. 2. Village-street in the Kolli hills.



FIG. 3. Kolli Malaiyāli girls in traditional dress.



FIG. 4. Kolli Malaiyāli girls, returning from the river with filled pots.



FIG. 1. Kolli Malaivāli women work hard in the fields.



FIG. 2. Agriculture is no privilege for men among Kolli Malaivālis.



FIG. 3. Kolli Malaivāli house. Old lady in traditional dress left, and (megalithic?) stone-seat in the foreground.



FIG. 4. Kolli Malaivāli woman feeding pigs. She wears her dress in present-day fashion fastened under the arm-pits, pressing the breasts violently.



FIG. 1. A 'rich' old Kolli Malaiyāli lady; she has had quite a number of husbands; now the wife of a village headman.



FIG. 2. A 'poor' Kolli Malaiyāli woman; she was an orphan and served in other houses.



FIG. 3. Kolli Malaiyāli man in traditional dress. He wears no fur-cap, but his own hair which in front had been shaven according to custom.

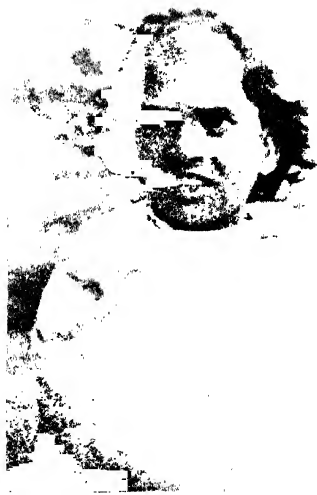


FIG. 4. A young Kolli Malaiyāli boy with similarly dressed hair.



FIG. 1. Kolli Malaiyāli women at rice-cultivation work.



FIG. 2. Pujary Katigaundan speaks on the nature of God.



FIG. 1. A young mother, who too wears the cloth tied across the breasts.



FIG. 2. Approaching the gateway to ARAPULLI ISVARA Temple.



FIG. 3. The Śiva-temple ARAPULLI ISVARA SWAMI-KOVIL, a Brahmin religious centre in the Kolli hills.



FIG. 4. A Kolli Malayiāli enters the Brahmin Śiva-temple ARAPULLI ISVARA SWAMI-KOVIL.

The Cultures of Maski and Madhavpur.

By D. H. and M. E. GORDON.

(Communicated by Dr. B. S. Guha.)

Everyone who is interested in the early cultures of India has, since the discoveries at Harappa and Mohenjo-daro, sought evidence that would fill the vast gap between any reasonable date that can be assigned to these finds, and the few remains which we know definitely to be of Mauryan date. It was therefore with interest, not unmixed with disappointment, that we read the following in a review by Mr. F. J. Richards in the October number of *Antiquity*, 1939—'Excavations at Maski, the site of an Asokan inscription of third century B.C., produced a tantalizing series of celts, chert flakes, potsherds, figurines, terracotta discs, beads and chank bangles, but no stratigraphic evidence of culture sequence'.

It was not until December 1940 that we were able to visit Maski in an endeavour to see for ourselves just what had been done, and what could be done to remedy that which had obviously been left undone. A few days' visit was short time in which to gain any considerable information, where two seasons' digging had so definitely failed, but we did manage however to obtain sufficient data to be able to put forward a definite sequence, and even attempt a reasoned chronology.

A short description of the site may be of value to those who have not got ready access to the Annual Reports of the Hyderabad State Archaeological Department.¹ Maski is roughly in the S.W. corner of Hyderabad State, in the Lingsugur Taluka of the Raichur District, and situated on the right bank of the river bearing the same name. The main site is that which is on what is known locally as Sultan Muhammed's field, an area bounded on the N.E. by Maski village and on the remaining sides by a semicircle of low rocky hills.

The excavations examined by us were two small areas (sites D and E) dug to a depth of about 10 feet,² a few shallow trial pits (probably sites A, B and C), and, apparently, a long trial

¹ The Annual Reports of the Archaeological Department of H.E.H. The Nizam's Dominions for the years 1935-36 and 1936-37, which contain the reports on Maski, are referred to in the text of this article simply by these years.

² All measurements were taken by us with a flexible steel measure, and are accurate to the nearest inch.

trench in the brown soil fields to the north of the main site. This latter may not be an archaeological digging at all, as it is not recorded in the Department's map of the sites; it did, however, provide us with a section at this point. Unfortunately we had no knowledge of site F, recorded as dug to depth of 20 feet, as this should have proved to be of the greatest interest. On the western slopes of the rocky hills which border the main site are caves, four of which were examined by us, the lowest and largest being the one having an Asokan inscription.

We covered as much of this area as we could in the short time available, and were fortunate in discovering a deep water-cut channel with vertical sides, in places as deep as 12 feet, with pottery in the section down to 11 feet. Site D appeared to be completely sterile, certainly of pottery, below 4 feet, site E below 5 feet, and the long trench to the north below $2\frac{1}{2}$ feet. We collected what material we could, and hoped that we should derive some more certain knowledge from the excavators' reports.

Mr. Richards' inability to discover evidence of sequence seemed to be amply justified. The extremely short report tells one only of what was found, completely without context of any kind. A subsequent appendix gives a list, sadly incomplete as we soon discovered, of the objects found. Here they are grouped either as surface finds or as dug from a particular site, no record of stratigraphical horizon being given. Enquiries as to the maximum depth at which various objects were found, and the depths between which the greatest numbers were found, produced the following information. Chert flakes were found at site D up to a depth of 8 feet and at E of 5 feet. They were discovered in greatest numbers from the surface to a depth of 5 feet. Conch shell bangles, carnelian and lapis beads were discovered mostly from 1 to 5 feet, as also were terracottas.

From the reports and from the information we have been able to elicit, it does not appear that the excavators kept a day-to-day diary or log book of their dig, nor that they maintained a card index of objects recovered, recording area and depth below surface and below datum. In fact it is unlikely that a datum level was fixed, although the configuration of the ground would appear to demand it. If they are misjudged in this matter, there is nothing in their published records that gives any sign of it.

From our examination of the material gathered from various sections, it has been possible to establish some sort of sequence, and this data has been amplified by a fairly large range of surface finds. The surface, in its usual bewildering fashion, seems to provide us with specimens of most objects to be found at the site—pottery of most types including painted and brown and black pottery, chank shell bangle, glass bangle, and chert flakes. At and close to the surface is a good deal of pottery with incised decoration, the most recent of which is completely fired to a

light red throughout. Of this type is a kusa spout with a small hump or boss on the underside close to its edge of fusion with the vessel to which it belonged. Such spouts with a hump are common on all sites of the Early Historic Period in N.W. India, where they are often decorated with black paint, and can for the most part be dated approximately from late first century B.C. to early third century A.D.

At $2\frac{1}{2}$ feet below surface are found fragments of the brown and black pottery identical with that found in the burial cairns of Hyderabad and South India.¹ Its general horizon appears to be from surface, where it may be in a relatively true context, down to 4 feet below surface, much below which depth it is unlikely to be found. This context agrees very closely with that in which it is found at Madhavpur, at both sites specimens being found with varying degrees of polish and with both totally blackened or partially blackened interior, the commonest form being straightsided shallow bowls with, at Maski, diameters ranging from 13 to 20 cms.

The next important type, as we get further down, is the highly polished entirely black bowl, fragments of which were found at $2\frac{1}{2}$, 3, and 5 feet B.S. Its general horizon is from 2 to 6 feet below surface, and, together with the brown and black pottery, will help us to fix a rough chronology. All the three rims of polished black bowls had the same diameter, namely, 18 cms.

Further down at 6 feet B.S. we recovered the only fragment of painted pottery to be found by us *in situ*. This horizon seems to fit in very well with other finds, and 4 to 9 feet B.S. is suggested as covering all the types of painted ware. Remaining finds *in situ* were brown pottery with brown inside at 8 feet B.S. and coarse brown-surfaced pottery with black inside at 10 and 11 feet B.S., the last named being the lowest level at which we obtained any pottery.

All the above were found in the water-cut section, mentioned earlier in this article, and were from the vertical face, undisturbed by any form of subsidence.

There were, as usual, other finds less easy to place. Sherds with a red exterior and brown interior at 4 feet 3 inches and at 10 feet appear to be identical; and a red pot rim also at 10 feet has the appearance of being out of context, but it was firmly embedded in an undisturbed section.

With the help of the finds we have just detailed, and others not all found in any true archaeological context, it is possible

¹ This is the so-called funeral pottery, being found in cairn burials all over Southern India. It is, however, a normal form of everyday pottery, used in certain areas, and which happens to have been deposited as part of the grave goods. It has no particular properties of its own with regard to burials, in spite of its deep black edge.

to work out the following sequence of Painted and Decorated Pottery. On the surface there are fragments with incised and impressed decoration, including a fragment of pale brown pottery impressed with the familiar lotus rosette, so common on northern Buddhist sites. This pattern seems to have flourished from middle first century B.C. to possibly as late as the sixth century A.D.; in any case all this incised ware of pale pinkish brown colour, and also any in pale red associated with the kusa spouts, found from surface to 1 foot B.S., can be dated to first century B.C.—first century A.D. without in any way straining the probabilities.

Dark grey pottery with a pink wash, inside and out, and impressed triangular decoration, is found at $2\frac{1}{2}$ feet B.S., this form of decoration being found also on the earlier pottery having a dark plum red slip. The latest style of painted pottery is that in which pink patterns are painted on a polished red-brown slip, having a polished black interior, which style is to be equated with the brown and black pottery of cairn burial type, found also at $2\frac{1}{2}$ feet B.S. The commonest type of painted pottery, however, is that in which lighter red patterns are painted on a dark plum red slip, found at 6 feet B.S. This equates with a similar dark plum red pottery, having impressed and incised decoration and a pale pinkish brown interior. Finally, there is painted decoration, mostly of lattice pattern, or dots, or both combined, in pink or white on a very dark brown or red-brown slip. Very dark brown pottery of identically this type was found at 8 feet B.S.

The above gives as good a review of the pottery to be found at the site of ancient Maski as our rapid reconnaissance would permit. Some tentative dating can now be attempted. The pottery normally found from surface to 1 foot B.S. can be provisionally dated as first century B.C.—first century A.D. The next pieces of characteristic pottery to be found are of the brown and black polished and unpolished pottery of cairn burial type. Of this Mr. Richards, in the review already quoted, has the following remarks to make: 'the dating of this "megalithic" culture is the subject of wild speculation; "3000–1000 B.C." convinces no one, and the attempt to date it by the Rig-Veda is pathetic. Fergusson thought that the Shahpur Cemetery could not be older than the fourteenth century. Mr. Codrington, on ampler evidence, suggests from about third century B.C. to well on in the Christian era (*Man*, 1930, 139)'. Following Mr. Codrington's example we date this pottery second to first century B.C., with a definite overlap at the lower end and a possible one at the higher.¹

¹ See Appendix A for a short excursus on the megalithic culture and stone implements of this region.

We then come to the polished black pottery, and the experience of Mr. Codrington and ourselves in relation to sites in Northern India tends to date this pottery as being from late third to early second century B.C. Its archaeological context makes this date agree very well with the dating given to the brown and black pottery found immediately above it.

The latest type of painted pottery impinges on the brown and black, but the bulk of it is older, and would appear to have been prevalent throughout the third century B.C., with the possibility of a slight margin of overlap at both the beginning and end of this century. The crude brown pottery at 10 and 11 feet below surface should, therefore, be of the fourth century B.C. or even earlier.

There is no doubt that the main types of pottery found in the cave shelters are different to those found in the town site. Though there are fragments of other types, by far the majority of the fragments found are of a well-levigated, fairly fine, light grey ware and of a primitive blotchy pale brown pottery of very inferior type. A pot lid with central knobbed handle was one of the objects found made in the grey ware; such an object, as has been pointed out by us frequently, has no dating value, these lids having an unbroken history of many millennia and being made in thousands at the present day. As is indicated later in this article, nothing in the way of a clear section was available from which to derive any date about this cave pottery. From an archaeological point of view, it can therefore be regarded as having been effectually neutralized, and any remarks that may at any later date be made, or conclusions drawn, about this material can only be both futile and false.

The foregoing deals as faithfully with the pottery as our investigations permit; let us now turn to the other classes of object found and see what conclusions we can derive from them. The following objects were found by us *in situ* in the vertical sections of the localities indicated: lapis beads, one at site D, 3 feet 10 inches B.S., one at site E, 1 foot B.S. and one at the nullah, 2½ feet B.S.; a chert flake at site E, 3 feet B.S. To recapitulate the State Archaeological Department's report, the following were found: flakes to a depth of 8 feet at site D and 5 feet at site E, greatest numbers being from surface to 5 feet; beads, conch shell bangles, and terracottas from 1 to 5 feet B.S.

Is there anything about these objects which tends either to confirm or disprove the dating we have proposed for the pottery? Let us first examine the beads. Carnelian and lapis lazuli beads and also etched carnelian beads are present at prehistoric sites in India, but they are present in far greater numbers in sites of the early historic period. Mr. K. M. Ahmed's remark that the beads from Maski bear a striking resemblance to Egyptian predynastic beads is one of those animadversions which do not really mean anything at all. The carnelian and lapis beads are

not to be distinguished from those which can be picked up all over the Gandhara region. The etched carnelians shown on Plate XII (a), 1936-37, can mostly be paralleled from early historic sites, the only definite exception being the one with the lines and zigzags drawn longitudinally instead of circumferentially. The conch shell beads also closely resemble those found in great numbers at Sahri Bahlol, on which small dotted circles, such as are shown on the examples in Plate XII (b), 1936-37, are quite common, and comma-shaped objects of copper, resembling those shown on the same plate, have been found in a first century B.C.—first century A.D. context at Sirkap.¹ The small tortoise bead found at Maski is also a favourite in northern early historic sites. We ourselves have five specimens, each cut from a different stone—crystal, carnelian, blood stone, steatite, and an opaque stone like white jade.

Fragments of bangle, both of conch shell and of glass, are found in large numbers. These also are common on early historic sites and the former on prehistoric sites as well, distinction between plain bangles in conch shell of the pre- and the early historic periods being, as we have observed elsewhere before, negligible. The ornamented specimens are many of them very similar both to the glass bangles and also to the bangles found at the Andhra site of Kondapur.

The terracottas mostly agree with types which are quite well known. The three or four modelled examples show the usual crudeness present in all modelled figurines found at early Indian sites. The torso (933) on Plate IV (b), 1935-36, has the applied ornaments associated at all other sites with an early second century B.C. dating. Not one of the moulded faces can be dated earlier than the first century B.C. and some may possibly be later. Two heads on Plate IV (b) have a high headdress approximating more closely to the Greek kalathos than to any headdress found in Indian sculptures. The dwarf figure on the same plate is of a type very popular throughout the Middle East during the period first century B.C.—first century A.D.

It will be seen from the above that the majority of the objects found have much clearer associations with objects of the early historic period than they have with those of the pre- or even the proto-historic periods. In fact it is only the chert and chalcedony flakes and the stone celts that persuade anyone to date any part of this site back to a millennium or more B.C.

What are we to make of these flakes? On Sultan Muhammed's field, if we are to presume the 'List of articles during the excavations at Maski' given in Appendix U, 1935-36, to be correct, we have the curious phenomenon of surface D producing 290 flakes and site D nil, and surface E producing

¹ A.S.I., A.R., 1919-20, Pl. X.

no flakes but site E, 180. We know, however, that this was not really the case as we were later told, as has been recorded above, that flakes were found to varying depths at both sites. The most important point, however, is that the majority of flakes were found from the surface to 5 feet B.C., that is in association with the various finds that can be dated third century B.C. to first century A.D. Now, unless we feel that the flakes in Sultan Muhammed's field were washed down annually from earlier prehistoric sites on the neighbouring hill sides, it appears from the above facts that these flakes were in use throughout the period of occupation of this site.

Our experience of flaking sites does not support this idea of an annual movement of flakes washed down and deposited over so large an area. Flakes may be uncovered and left high and dry by heavy rain, and they even accumulate to a certain extent in small wash-aways, but rain does not pick them up and broadcast them over several acres. Students of Indian archaeology have sooner or later to reconcile themselves to the fact that the ribbon flake implement in particular, and microliths in general, persisted in very many places in India well into the Christian era, and that the presence of pottery and figurines in the Dorothy Deep cave at Pachmarhi, in close association with microliths of identically the same type as those found at Maski, is only another of those examples which it is hoped time and research will multiply. At Yergunty, close by, similar flakes were found on an ash mound left by iron smelters, and there is nothing in the least strange about implements of iron having co-existed with implements of stone, which required much less organization and paraphernalia for their manufacture.

Such generalizations as are made by Mr. K. M. Ahmed in Appendix D, 1935-36, are quite meaningless. The researches of the last forty years have shown quite conclusively that the Neolithic, Bronze and Iron ages cannot be put into watertight compartments, even when dealing with limited areas. It is also a matter of general knowledge that the Ayas of the Rig-Veda cannot by its context refer to anything but copper or bronze, and it is not until one comes to the period of the Brahmanas that one encounters the two distinct kinds of Ayas, one of which was almost certainly iron or steel.

Before turning to the site of Madhavpur, there are a few miscellaneous points about Maski which are deserving of mention. In connection with the terracottas, one female figure, which does not appear to be recorded either in the Plates or in Appendix U, is said to bear a striking resemblance to figures from Malta. The Malta figurines of recumbent or squatting women with exaggerated limbs, which the authors have seen, bear no resemblance to the description given. Perhaps Mr. Yazdani is confused with Malta in Siberia, where figurines have been found,

but again there does not appear to be any likelihood of striking similarity.

The crudity of a terracotta horse leads Mr. Yazdani to believe that this animal must have been unfamiliar to the potters of Maski. Actually terracotta horses are invariably crude. Since, unless moulded in relief, which is a different business altogether, the technical difficulties of producing a really good horse, exhibiting qualities of anatomical perfection, were far too great for any of these early potters. Even the Parthians, who lived on horseback, made the crudest representations of this animal. Without wire reinforcement, the slender limbs could not be produced, and this technique does not seem to appear in India before the fourth or fifth century A.D.

The only definitely datable object appears to be a seal with an inscription of the second-first century B.C. This and the pottery disc with the animal figure are both objects which go to support a late dating for much of the material found at this site.

One cannot leave the site of Maski without a word or two on the subject of archaeological method. Not any has, so far as is ascertainable, been applied by the local authorities in this instance. There is no hard and fast record of sequence. Some finds are recorded without context, some are not recorded at all. A Plate (II, *b*, 1935-36) shows what is described as a funerary urn, but nowhere is there any record as to whether this urn contained human remains, and if it did not, then there is no vestige of proof of its funerary character. Objects have been retrieved haphazard from the ground, and a certain number of quite unwarranted conclusions have been arrived at by a process of wishful thinking.

This is of no great consequence at the main site of ancient Maski, as there is ample room for future excavations, which may serve to redress the balance of the old. With the caves, however, the situation is very different. The large important cave with the Asokan inscription has been eviscerated, not even a sample section having been left, and the whole interior has been lined with stone slabs and cement. The case of the other caves is as bad, as, being small, only a small quantity of earth remains, precluding any improvement on the so-called excavation to which they have been subjected. It is difficult now to judge in what condition the floor deposits were after centuries of rain, which in some cases must have washed through the caves, once any temporary artificial obstructions had been removed. There is no evidence, however, to suggest that any scientific approach was made to the problem, or that such an excavation as that of Mr. Leslie Armstrong at the Bambata Cave was taken as a model. No repentance can bring back the deposits of the Maski caves, and if, as it appears, no proper record was made, their testimony

is lost for ever and any speculations founded on the contents so obtained are valueless.

Let us now turn our attention to the site of Madhavpur which is on the southern outskirts of Belgaum. It is a bit difficult to describe in relation to the one-inch Survey Map, as there appeared to be some discrepancies in this particular area. The road to the site runs due south from the main Dharwar road at a point where this road, about two and a half miles from Belgaum, is for a short time running due east and west. The site, which is a large one, lies to the west of the road leading to it. The main part appears to be a large shallow mound in the S.E. corner, roughly 150 yards square. Portions on and near this mound have been dug up without much apparent system, there is also an excavation for a square well, dug down into the northern margin of the mound, and places where the villagers have dug for earth and left a section studded with pottery.

Examination of the excavated areas was not facilitated by the fact that the villagers had used them without exception as latrines. Exhaustive search produced only two sherds of painted pottery, one of which is doubtful, and the other needs a very careful scrutiny to observe the single pink line drawn across it. We can give a definite assurance that, after ten years of 'scrourging' the surface of sites all up and down India especially for painted pottery, of which we have a collection probably unrivalled anywhere in scope, had there been even a few sherds of the description given in the report on this site, we should have found them. So the painted pottery with which this site was reputed to be replete would appear to exist in the imagination rather than in fact.

In addition to searching the surface meticulously, we braved the unpleasantness of the three excavation holes, and examined the sections carefully with the following results. There is a pebble layer which appears in most of the sections at about 2 feet 9 inches B.S., but in one place is displaced to 4 feet 2 inches B.S. In association with this layer of pebbles are strong foundations of similar pebbles set in a hard greenish grey clay, and at an average depth of 2 feet 9 inches B.S. Brickwork is bedded on to this foundation, the size of these bricks, which are roughly square, being $8" \times 8" \times 3"$. These brick structures were tiled with roughly made tiles of dimensions about $6\frac{1}{2}" \times 10"$, having a smoothed smear surface on what was the upper side and a coarse gritty surface on the underside, and are provided with grooves along the opposite edge of each side so that they overlap and fit side to side when placed on the roof. They have also two peg holes by which the tiles were fastened to the roofing laths by wooden pegs.

Pots fired red throughout were found from surface to 3 feet 2 inches B.S. Globular pots, red throughout, with rims as shown

in Text-figs. 1 and 2, are from surface to 1 foot 8 inches B.S.

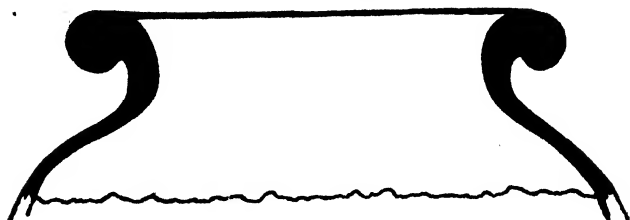


FIG. 1.

Kusa spouts of red pottery are plentiful on the surface, but while none has a well-developed hump, one has a small boss. Shallow dish bowls of 36 cms. diameter, having slightly thickened incurving rims, made of finely levigated brown pottery, appear at about 1 foot 4 inches B.S. Small bowls of the shape shown in Text-fig. 3 were found at 20, 24, and 36 inches B.S. Carinated bowls of brown, red-brown, and light red pottery with, in most cases, a polished brown slip were found from 1 foot 8 inches to 2 feet 6

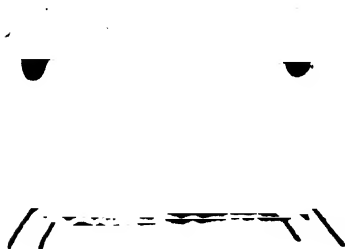


FIG. 2.

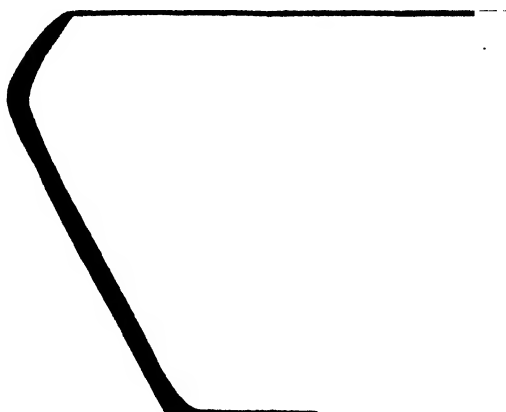


FIG. 3.

inches B.S. Carinated bowls are common on all early historic

sites, and have been made at all periods and are still made in India at the present day. The dating value of this shape without specific association or decoration is negligible.

Decorated pottery with applied cord and other forms of applied and impressed decoration is to be found in the first 30 inches of the section. Small jars, as shown in Text-fig. 4, came from between 2 and 3 feet B.S. These have a slight resemblance to small jars found in large numbers at Mohenjo-daro, but these latter have a much thinner section, and the Madhavpur pots are almost identical with the cosmetic jars found in the Gandhara region. Dishes

with flaring sides and small base, as shown in Text-fig. 5, of pottery fired red throughout, having a diameter of 15 cms. are fairly plentiful between 2 and 3 feet B.S.

FIG. 4.

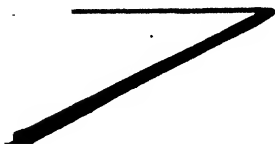


FIG. 5.

Brown and black ware of the South Indian cairn burial type is found between $2\frac{1}{2}$ and 3 feet B.S., being represented by shallow straight-sided bowls, from 20 to 34 cms. in diameter, of the same type as we found at Maski (Text-fig. 6). These, as



FIG. 6.

at Maski, are both polished and unpolished. A fragment of a highly polished brown and black bowl with slightly everted rim, of the type shown in Text-fig. 7, having a rim diameter of 14 cms. was found at 2 feet 10 inches B.S.

An excavation which we called pit 'A' showed a section to slightly over 9 feet depth. Below the pebble layer there was

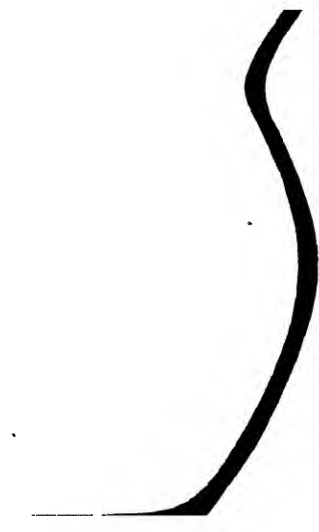


FIG. 7.

no obvious occupation layer till one reaches a level of wood ash staining at 6 feet 8 inches, which is followed by one of almost solid charcoal deposit, an inch and a half thick, at 8 feet 9 inches. A pot lid of coarse pottery fired red throughout was found at 3 feet 3 inches B.S., below which down to 8 feet 6 inches one found fragments mostly of a poorly fired brown pottery with a slightly polished washed surface, also some moderately thick coarse dark grey to black pottery with no polish. In the ash deposit at 8 feet 9 inches we found a fragment of pottery with a highly polished black slip of the type found between 3 and 5 feet at Maski. Below this again at 9 feet came a piece of thin-sectioned slightly polished brown pottery.

The accumulated soil containing remains has in general a thickness of 12 feet above the bedrock of hard kankar. In the S.E. corner of the site, however, the deposit is very loosely packed. Bricks extend down to 3 feet 4 inches, and dishes with small base and flaring sides down to 4 feet 2 inches. An important piece was found here, one of the two pieces of painted pottery; this, a fragment of thick section brown pottery with a dark plum red polished slip, having a single pink line painted across it, was recovered at 9 feet B.S., but this would represent the same horizon as 8 feet or higher at pit 'A'.

From the above, one can make some chronological observations. The tiled brick houses with pebble and clay foundations are late, though how late it is difficult to say. The tiles are definitely from this stratum, and are quite unlike the usual

country pantile, or the modern Mangalore tile. The surface finds of kusa spouts and the pottery of the first 2 feet indicate a dating of the early centuries A.D. The brown and black pottery is possibly a trifle later here than at Maski, but one can say that the thin-sectioned pottery found at 9 feet B.S. is probably of early third century B.C. date, the fragments of dark red painted and black polished pottery—late third century B.C., the poor quality pottery between 3 feet 3 inches and 8 feet would be of the second century B.C., and the brown and black pottery early first century B.C.

Over and above the pottery found in some sort of true and relative context, the following objects of interest were recovered. At the N.E. corner of the site two very thin fragments of pottery, coated with a gold metallic wash, were taken from a rather loosely compacted section at between 30 and 40 inches B.S. A fragment of identical style and finish was picked up by us on the surface at the microlithic flaking site at Chandargi, but one cannot claim that this has any particular significance whatsoever. On the surface at the Madhavpur site the following were recovered: two fragments of incised pottery, one coarse and thick with a black interior produced by slow incomplete combustion, showing remains of a red-brown polished slip; the other, moderately coarse well-fired pottery, brown throughout its section, with a dark brown polished slip; a fragment with a duck and plants in low relief, red with a black section; a light brown fragment decorated with a number of small adjacent circles fairly deeply impressed with a reed; a large, very thick, coarse fragment, having its surface covered with a polished black slip or, having regard to its thickness, more properly paint.

Other surface finds include a hollow pedestal (?) of fine pale red pottery; a miniature shallow bowl; a pale blue ribbed glass bead; a fragment of green stone or possibly glass, struck like a microlithic flake; a rough stone point apparently of the same age and a similar material to points and flakes collected by us at Aidnal, Raichur District; and two small pottery discs, such as are found on all ancient sites.

A preliminary survey made by Dr. Krishna, Director of Archaeology, Mysore State, at Brahmagiri reveals much the same kind of cultures as have been found at Maski and Madhavpur. The rubble foundations, peg-hole tiles and occasional bricks indicate an identical culture close to the surface with that found at Madhavpur. No brown and black pottery of cairn burial type appears to have been identified, but it will be surprising if it is not present. The painted pottery described seems to equate with the older type at Maski, but probably all the Maski types are represented. Highly polished black pottery is an outstanding feature.

As usual, the small pottery discs made by grinding broken potsherds were found. What the use of these objects was is

difficult to say, we have found them on nearly every site we have ever visited, including Mohenjo-daro. Personally we feel that they are probably weights, as by careful grinding one could get a true balance of small weights very easily and very exactly. Microliths do not appear to be common, but in view of the style of microliths found by us at Dharwar and Bangalore, one can take it that a high standard of microlithic production is impossible in the rough local quartz. It is therefore possible that rough artifacts and chippings of this sort may have passed unnoticed.

What conclusions can we draw from the foregoing? Firstly these sites appear to lie in dating, Maski between the fifth century B.C. and the second century A.D., and Madhavpur between the fourth century B.C. and some date in the early centuries of the Christian era, difficult to determine by such a hasty reconnaissance, the dating of Madhavpur, however, being further borne out by the find of a pillar with a Brahmi inscription of early second century B.C. The dating of these sites, tentative though it may be, agrees fairly closely with that assigned by Mr. Codrington and ourselves to the Bhir Mound, Taxila, namely, c. fifth century B.C. to late second or possibly early first century B.C.

Some of the remains at Maski are undoubtedly pre-Mauryan, but it is unlikely that the town site was occupied, by anyone who left remains there, earlier than the fifth century B.C. It will probably be found in due course that the above remarks have equal application to the site of Brahmagiri.

Secondly, we feel that it must be admitted that there is an ever-increasing body of evidence to show that artifacts of stone persisted alongside with iron implements until quite a late period, in out-of-the-way jungle parts probably until well on in the Christian era.

Finally, our reconnaissances, though they were all too restricted by the shortness of time available, were conducted with some show of method and have achieved some reasoned results. If so much, little though it may be, can be achieved in so short a time and by so slight a means, what would not be possible from investigation carried out by trained excavators, employing the methods as laid down in Badé's 'Manual of Excavation in the Near East'. Until such a scientific approach has been made, we submit that our proposed datings, which have some backing of reason and method, should be allowed to stand.

APPENDIX A.

A Note on the Megalithic Cultures of South India.

It is noticeable in the portion of Mr. Richards' review quoted by us that he entwines the word megalithic in inverted commas. The fact is that the dolmens of the Raichur District are not what we associate normally with the word megalithic. These extremely thin slabs may or may not be relatives of the massive dolmens found elsewhere, including India itself. In Southern India the use of large stone slabs is extremely common, the rock formation enabling these slabs to be split off with great ease, up to almost any size that might be required. For miles one can see 'alignments' of monoliths 14 feet high, embedded some 4 feet into the ground, with notches cut at the head and pierced with two or three holes—telegraph poles! Under these circumstances Mr. Richards' inverted commas appear to be amply justified.

Far be it from us to wish to deprive anyone of due credit, but the remark that pottery marks of the dolmen and cist cultures were first discovered by Mr. and Mrs. Yazdani cannot be allowed to pass unchallenged. Such marks have been known for very many years and were, as Mr. Richards points out, published by Bruce Foote in 1901, still others being published by Cammiade in 1930. No sort of abstraction can be placed on a pot to indicate ownership, or engraved or painted in a rock shelter by some ancient 'doodler', but at once it must be hailed as a script hitherto unknown. Without exception this incognito remains undisturbed.

There is at present nothing to indicate that the three styles of celt—chipped edge, ground and polished edge, and ground and polished all over—are of successive periods showing an advance in technique. The method of production of the first two is identical except for the ground edge, and, in the same way as one gets long narrow-pointed implements with no grinding, it is possible that the unground types were used as hoes not axes, and therefore did not require the keen edge of the ground types. Those ground and polished all over are of a totally different style of stone, with an appearance of a granite, from the shale from which the first two types are made.

APPENDIX B.
Table of Chronological Sequence: Maski.

Date.	Level in Feet.	Decorated Pottery.	Glass Bangle.	Beads all Types.	Terra- cotta.	Br. & Bl. Pottery.	Polished Black P.	Painted Pottery.	Brown Pottery.
First century A.D.	Surface to 1	Yes	Yes	Yes	Yes	?	..	..	..
First century B.C.	1 to 4	"	"	"	"	Yes	..	..	..
Second century B.C.	4 to 8	?	?	"	"	"	Yes	Some	..
Third century B.C.		"	Some?	?	"	Yes	Yes
Fourth century B.C. and earlier	Below 8	?	?	..	"

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**Conception, Pregnancy and Birth among the
Tribesmen of the Maikal Hills.**

By VERRIER ELWIN.

(Communicated by Dr. B. S. Guha.)

1. INTRODUCTION.

In this paper I propose to give an outline of the general ideas about motherhood, conception, pregnancy, birth and the puerperium held in common by a number of the tribes living in the Maikal Hills—that beautiful range at the extreme end of the Satpura Mountains—and the immediate neighbourhood.

The information assembled in this article was gathered over a long period of about ten years of residence in this area, during which I lived with my colleagues in thatched mud huts in closest contact with the tribesmen. In addition to research, we were maintaining schools, a dispensary and a Leper Home run on the broadest humanitarian lines. This meant that we were regarded, after a preliminary period of suspicion, with the greatest confidence by the people. The result was that it was comparatively easy to get information from them even on very intimate matters. I was greatly helped in my enquiries by Mr. Shamrao Hivale, who is known all over this area as Chota Bhaiya—the little brother of the people—who helps them in all their difficulties and is ever ready as a friend, confidant and guide. My two trained assistants, Gulabdas and Sunderlal, also gave me valuable information. My wife, herself a Gond, and members of her family were of invaluable aid in giving me the women's point of view on many matters about which a man (and especially a foreign man) is normally bound to remain ignorant.

I have been greatly struck by the fact that, generally speaking, all the tribes of one particular area who are on the same level of progress and acculturation hold precisely the same views about the great majority of subjects. The Baigas may be more highly sexed than the Agarias, the Gonds may have a higher idea of domestic morality than certain other tribes. One tribe will be more attached to shifting cultivation; another to the delights of the chase. But on such matters as religion and magic, and the customs governing sexual intercourse, birth, and childhood most of the tribes living in one district hold the same views and observe the same customs. That is why I have felt justified in referring throughout to the customs of the Maikal Hills rather than to those of particular tribes.

The tribes from whom I have gathered the descriptions and ideas outlined here are the Gonds, Agarias, Baigas, Pardhans, Dhobas, Bharias and a few others. My own books on the Agarias and Baigas will give the necessary background to those tribes. Russell and Hiralal have brief accounts of the others and these may be read, but their article on the Gonds is very misleading and should be ignored, and indeed all their information must be taken with caution. This same warning applies to some of the information which I have given in the foot-notes. Thurston and Enthoven, many of the writers in the *Census of India*, Risley and Russell have given us much information of value and they must always be remembered as pioneers in a difficult and unknown field. But, on matters of sex specially, they suffered not only from the limitations of their own psychology, but also from their official position, which constantly inhibited their informants from giving them the truth.

With this brief introduction let us proceed to an examination of our subject. We will begin with an account of the desire for children among these tribesmen and proceed to their attitude towards barrenness and contraception; we will describe the mechanism of conception as it appears to them, discuss the rules of pregnancy and its cravings, give a full account of the whole process of parturition and the customs governing the puerperium, and conclude by an account of some abnormal births together with the tribal attitude to twins.

2. THE DESIRE FOR CHILDREN.

A woman ought to be a wife, a wife ought to be a mother. That is the normal rule, and no one has a greater devotion to the normal than the aboriginal. Though it is a reproach for a woman not to have a child, it is not so serious for the Gond or Baiga as for the Hindu woman, whose need for a male child is enforced by supernatural and religious sanctions. The tribesmen's desire for children is a simple and human one; they want sons to help in the work of the farm, the smithy, the forest clearing; they want daughters to help in the work of the house and later to bring a handsome bride-price; but above all economic considerations they want children because they love them. These people delight to have children about the house: without children life is dull and savourless, there is no variety or interest.

When I have asked women what they would choose if God promised them an immediate fulfilment of their wish, the younger among them unanimously and immediately have answered 'A child'.

Barrenness may be due to various causes. We will put first—though the Gond would not put it first—some physical defect. This is recognized by the tribesmen as an actual cause. The

womb may be 'wrong', the tip of the clitoris may be 'blunted'. A Dhoba declared that a childless woman has her womb upside down and the male seed cannot enter it. The Pardhans say that if a girl's menstrual cloth looks green when she hangs it up to dry, everyone knows she will be barren. The sinister colour would probably indicate that the girl was suffering from a gonorrhoeal discharge. The venereal diseases are recognized as causes of barrenness. 'My husband's seed,' a woman told me, 'has gone rotten through syphilis.' It is generally believed that the weakness of a man's seed, when he is thus diseased, will account for his sterility.

Another cause of childlessness is failure to effect coitus in the proper manner. Some people believe that if conception is to occur, both partners to the act must achieve orgasm simultaneously. 'It is when there is blood in the man's water,' said a Baiga, 'and blood also in the woman's water, and these two mingle, that you get a child.' Others, however, say that the woman's orgasm plays no part in conception and must be achieved first; otherwise 'her water will wash away the man's seed and there will be no child.' 'A man should not,' said a Bharia, 'insert his organ immediately. He should rub it against his wife's body till she is excited and has her orgasm, then he should wipe away her water and only then insert his organ and copulate with her properly. Now there will be no fear of her water pouring down and washing away his seed, as a storm washes away the seed from a hill-side.'

If even then no child is born, the Bharias consider that 'the tip of her clitoris is bent' and 'her flower is too small'.

It is interesting and significant that these physical obstructions to child-bearing are recognized, for many far more 'civilized' people in India generally attribute sterility to supernatural causes. The tribesmen, of course, do so also. Among supernatural beings, the Samduria Sisters watch with anxious and jealous eyes the women of earth and try to stop them having children.

Witchcraft, however, is regarded as the chief cause of barrenness. The witch, herself probably a nullipara, frustrated and jealous, does all she can to prevent other women leading normal and happy lives. She can sterilize a woman's womb most easily at a marriage, for it is then that both bride and bridegroom are most exposed to hostile supernormal influences. As the Suasin rubs turmeric on the bride's body, the witch may slip a spirit of evil into her womb. At the time of the Tikawan when everyone is throwing lucky rice at her, the witch may throw bad luck along with it. When her plait is undone by her husband down by the river, an enemy may put a spell of barrenness upon the girl. If a witch stands on her heels and, holding her left cheek with one hand, touches the *mangrohi* pole with the other, the bride will be barren.

Breach of tribal law, such as incest, marriage within the forbidden septs, marriage outside the tribe, may also lead to barrenness or, even worse, to the birth of monsters.

3. THE CURE FOR STERILITY.¹

A physical defect must be treated by physical means. If the wife's clitoris is 'bent' or her womb is 'wrong', her husband will have to take an extra wife. If she is sensible, the first wife will not object, though she can seldom bear the sight of children born to her partner in her husband's bed. A woman also, if she finds her husband impotent or 'his seed weak or rotten', generally runs away and marries someone else.

Medicines are sometimes used before resorting to such desperate measures. I have recorded a few of these remedies.

PREScriptions.

From a Baiga at Jaldar (Mandla District).

'Go to the jungle on a Saturday and find a root of the *safedsehra*, a branch of the *kirsoru* tree and a root of the *murikira*.² Sprinkle dal and rice over each, saying "I invite you, I take you to do the work of medicine. If there is advantage from it, I will give you a coconut". Then on the day that your wife bathes at the end of her period, bring the three ingredients from the forest, get some milk from a cow who has a calf of the same colour as herself, mix all together and give your wife to drink.'

The wife of Thumra Baiga of Chapwa is often quoted as having successfully tried this remedy.

From a Kawar of Korba Zamindari.

'Get a *musarkund* (*Dioscorea pentaphylla*, Linn.) which is growing in the hollow of a tree, and give it to your wife and she'll certainly have a baby.'

This seems to be a magical cure—the root growing in a hollow tree represents the child in the womb.

¹ This subject has been studied at great length, especially in relation to supernatural births, by Hartland in *Primitive Paternity*. Enthoven collected a number of magical and medical cures for sterility common in the Bombay Presidency at the beginning of the third decade of the present century. (*The Folklore of Bombay*, pp. 285ff.) But it is noteworthy that in only one case is there any parallel to the practices described in this book, and then—'the barren woman swallows the navel string of a new-born child'—a gastronomic feat the accomplishment of which might well produce anything.

² I regret I am unable to identify these plants.

From a Chokh Agaria of Lapha Zamindari.

'Obtain a little of the lochial discharge of a young mother, together with a bit of the umbilical cord. Make it into pills with country sugar, and give it secretly to your wife to eat. I gave this once to a Dhanwar woman and she soon became pregnant.'

Medicines are not often used; the *gunia* magician is in more frequent demand. His first duty is to divine the cause of the sterility, then to prescribe a cure. If he discovers that the trouble is due to the hostility or jealousy of some ghost or godling, he will advise the offering of appropriate sacrifices. On the other hand, he often recommends definite 'magical treatment'. Sometimes he gives three pinches of ash to the wife and three to the husband. Sometimes he takes the pair to the junction of two streams. There the woman strips herself naked and sits on the bank. The husband walks round her seven times, and the *gunia* throws black and yellow rice at them. If he succeeds in hitting them, it means they will have a child.¹

The Baigas sometimes try this method: on the evening of the day that the wife has bathed after menstruation, she shuts up the house and prepares supper. Husband and wife then sit down opposite one another, and open their clothes. They rub ashes over their pubic hairs, pull them out and throw them away: as the hairs are usually kept down, this is not such a big matter as it sounds. Then they exchange garments. After that, still wearing one another's clothes, they sit down for supper. The wife eats off a leaf-platter upside down, but the husband's should be the right way up. They must both eat at the same time. Then still wearing the same clothes, they go to bed, and that night a child should be conceived.

At the bottom of this is probably the fact that the long and elaborate preparation for coitus serves thoroughly to excite both parties.

Just as impotence is contagious, so is fertility. The shadow or the touch of a pregnant woman may make another pregnant. The umbilical cord is for this reason in great demand: a scrap of it eaten by a barren woman or even tied in the fold of her sari is enough to transfer the fertility of the child's mother to herself. But as the cord is always carefully buried or concealed, it is not an easy remedy to procure.

Girls sometimes observe certain rites at the menarche. Sometimes they go to the forest and picking a bundle of leaves,

¹ I have not found blood used by these tribesmen as a cure for sterility. This is sometimes used, however, in India, and three cases of the murder of children for obtaining offspring occurred in the Punjab as recently as 1921, in one of which a barren woman bathed in the blood of a child. (Penzer, *Ocean of Story*, ix, p. 143.)

balance this on their hips as if it were a child, and so bring it home. Russell and Hiralal describe how in 'parts of Mandla' a girl at this time 'stays apart for four days, and during this time ties up one of her body-cloths to a beam in the house in the shape of a cradle, and swings it for a quarter or half an hour every day in the name of Jhulan Devi, the cradle goddess. On the fifth day she goes and bathes, and the Baiga priest and his wife go with her'. The Baigin tattoos the image of Jhulan Devi on each side of her body, and she gives in return a 'black hen with feathers spotted with white . . . as they say that this hen's blood is of darker colour and that she lays more eggs. All this ceremonial is clearly meant to induce fertility in the girl'.¹

Grain is thrown at the bride during a marriage in order to induce fertility, and at the end of the ceremonies two little slabs of wood are put in her sari and she is made to clasp them to her body, while the onlookers exclaim that she will certainly have twins.²

In *The Baiga* I have recorded a curious taunt-song about a barren woman which suggests still other remedies.

She cannot get a child, she cannot get a child.

She eats a little mouse,

She eats a tiny frog,

She gobbles up a tiger.

But she cannot get a child.

Hartland records that the Thompson Indians of British Colombia sometimes eat a roasted mouse in order to ensure conception,³ and the Andaman Islanders are said to prescribe 'a certain species of small frog'.⁴ But I have never actually heard of this diet being seriously adopted in Mandla.⁵

Indeed I doubt whether any of the tribesmen have a very serious belief in the efficacy of the magical means of getting children. As a Gond woman once said 'A child who is born by *dekhai-sunai* (the 'looking-and-listening' magic of the magician) never lives, just as a girl married by force never stays with her husband.'

¹ Russell and Hiralal, *Tribes and Castes of the Central Provinces*, iii, p. 83. This account, like everything in Russell and Hiralal, must be only accepted with caution.

² Compare also the custom of the Reddis of Mysore, for example, whose barren women eagerly sever the cord, mix it with flour and wave it thrice round their faces. (Iyer, *The Mysore Tribes and Castes*, iv, p. 514.)

³ Hartland, *Primitive Paternity*, p. 54.

⁴ *Ibid.*, p. 90.

⁵ I have not myself met the custom, described by Crooke, of beating Gond girls with the *gurud*, an iron chain with an iron knob at the end, as a cure for barrenness. Frazer (*Golden Bough*, ii, p. 233) describes the custom of beating girls at puberty, probably with the same idea.

4. ATTITUDE TO CONTRACEPTION.

The tribesmen of the Maikal Hills are not very interested in contraception. Their families are small--the average size of a tribal family in the Central Provinces is said to be only 3.7 to 4.0, and out of every 1,000 children born, only 687.8 to 891.2 survive.¹ Nearly everybody wants to have more children. A Pardhan woman of Patan (Mandla District), who took a contraceptive medicine in a fit of temper with her husband, now bitterly regrets it and is constantly trying new methods to restore her lost fertility. The famous Baiga, Yogi Dewar, who had twenty-six children from his six wives, was greatly admired for his enterprise and potency. Children are such lovely and delightful things, so helpful economically, so helpful to one's prestige, so useful in the house--why should one want to stop them coming?

There is no doubt that is the attitude. There are two kinds of exception to it. One is when a woman is weary of child-bearing and the family can support no more; the other is when the child would be illegitimate, born before marriage or from the wrong man.

Sukli Baiga, for example, had ten children and the economic burden was too great. 'He took some medicine and his seed went bad; he had no more children.' That was twenty years ago. It is a remarkable case of belief in the possible sterilization of the male.

The *lach-kur*, a small herb often used by witches to make men impotent, can also serve as a contraceptive when tied round the waist of a woman. The flower of the *katai* (*Flacourtia ramontchi*, L'Herit.) is also useful. A Dhoba recommended the root of the *kumhra* tree--if this is taken there will be one child, but no more. If this fails, the bark of the *lāl-potār* may be used.

As we would expect from people so steeped in the principles of sympathetic magic, the most powerful contraceptives are taken from barren trees or grains. Near Parsel (Mandla District) there is a barren *bahera* tree (*Terminalia bellerica*, Roxb.) and many women, it is said, have eaten its bark and found it effective. Similarly, the roots of the wild *juār* grain, which has neither seed nor fruit and is called *bānj juār* (just as a barren woman is called *bānjli*), made into pills with *gur*, can effect contraception. A Gond woman of Kundapani is quoted as having tried this remedy with success. The bark of any barren tree, especially if it has a parasite, can be used. The Kawars of Korba recommend a seed of *san*-hemp mixed in the woman's food.

¹ These figures are from the 1931 Census. Census figures cannot be taken as accurate in the scientific sense, but they give some indication of the state of affairs.

The Agarias, or some of them, think there is a safe period. 'For twenty-one days the mouth of the bag stays open and the seed can enter; then it shuts and no child will be born.' But there is no widespread confidence in this. The Baigas and Dhobas also say that if, when a child is born, the parents decide that it shall be the last, they lay the placenta on the ground with the foetal side upwards. But other people say that this will only have the effect of changing the sex of the next child.

It will be noticed that there seems to be no idea of what we may call temporary contraception. The tribesmen do not aim at birth-control, but at permanent birth-prevention. Even about this there is great scepticism. No one can be sure. A Pardhan woman took one of the above remedies and it worked; her mother took it and has had three more children.

There is very little reliable information about abortion in India and I doubt whether much will ever be obtained. For example, Mills, speaking of the Rengma Nagas, says, 'There may be some secret drug known only to women, but Western Rengma men give only vague information, and Eastern Rengmas none at all.'¹ This is what one would expect. But Col. Shakespeare goes too far in assuming from this reticence that 'no attempt at abortion is ever made' by the Memis.² Such negative conclusions are always dangerous. And Hutton says that Angami 'girls about to become mothers used to, and probably still do, though of course it is denied, procure abortion by twisting and squeezing the abdomen'. The Aos, also, 'undoubtedly' procure abortions of unwanted children—one method is to 'feel from outside for the child's head a few days before birth and give it a sharp rap with a stone'.³

The Rengmas give a drink made of small, very strong onions pounded up with warm water, or strongly aperient berries, leaves or tubers. The Oraons administer a glass or two of the strong *phuli* liquor, made from *mahua*.⁴

It is quite impossible to say how far the custom is common in the Maikal Hills. Not only are there obvious reasons for concealment, but also as with many such tribal remedies there is a belief that to reveal the prescription is to rob it of its efficacy. But I have often heard of cases of abortion, and I estimate that attempts at least are made fairly frequently.

The most popular method is heavy massage. 'They ground me as if I were wheat,' once said a Baiga girl. Sometimes the masseuse stands on the body of the girl and stamps with her feet 'till the child within turns to water'. But some Gond women have told me that 'it is no use. If you massage, the child only gets fatter. The pity of it is that a good woman's

¹ Mills, *The Rengma Nagas*, p. 118.

² Hutton, *The Angami Nagas*, p. 341.

⁴ Roy, *The Oraons*, p. 248.

³ Ibid., pp. 171-2.

child will come out at a touch, but a bad woman's cannot be shifted'. And a Pardhan woman said, 'Whatever you do, if God wants to put you to shame, you can't get it out.'

The most drastic remedy was given me by a Pardhan. The following ingredients were to be boiled together and drunk—I do not know in what proportions:

Brandy, that is, *phuli-mahua* liquor.

Gunpowder.

Bark of *tinsa* (*Ougenia dalbergioides*, Benth.).

Amarbel creeper (*Cuscuta reflexa*, Roxb.).

Root of *indravan* (*Coccinea indica*).

Some grass three years old from the roof.

If this is not enough some stems of *kodon* plants (*Paspalum scrobiculatum*) may be added.

The social attitude to abortion is one of mild disapproval. It is considered a dangerous thing to do, both legally and for the health of the girl, and it is not really necessary. There is no scorn for the illegitimate child and little for the unmarried mother, even though she is not likely to fetch so high a bride-price and the parents will probably have to give a larger feast at her marriage to silence critics.

5. THE MECHANISM OF CONCEPTION.¹

In *The Baiga*, I have recorded some vivid accounts of the actual mechanism of conception. 'The day the woman washes her head,' one Baiga informant told me, 'her husband goes to her. Above her stomach there is a little bag; its mouth opens and shuts; there is blood in it. His seed rushes in and the mouth of the bag shuts. Her blood and his seed mingle; it becomes the blood of a child that grows.' 'In a man's water,' said another, 'there is flesh. It is when there is blood in the man's water, and blood also in the woman's water, and these two mingle that you get a child.' The Baigas, it will be noted, stress the fact that the orgasms of the man and woman should coincide.

An elaborate account was given by an Agaria. 'Inside a woman there are two bags. One is the womb, the big bag, and below it but above the vagina is another little bag. The womb has two mouths, one above and one below. When the woman's period begins the lower mouth opens and the blood flows out. When she washes her head, the mouth shuts and the blood is kept inside. Then the mouth of the little bag says *chap chap*

¹ One of the very few accounts of this that we have for India is in Gorer's *Himalayan Village*, pp. 283ff. The Lepchas hold that 'within the womb is something resembling a nipple through which the child draws nourishment; this nourishment is something like butter and is the transmitted food of the mother, just as milk is after birth.... The child does not feed on the menstrual blood'.

chap, and for this cause the whole tribe of women constantly seek men. When a man goes to a woman, his seed rushes into the small bag and its mouth closes on it. That bag is very thint and a tiny hole leads through it to the womb. Through that hole comes the blood and the man's seed sets it, so that it becomes thick like curds; the blood and seed set together and a child is made. One bag is now full of water, one contains the child. From the blood the flower (placenta) begins to grow; it feeds and plays with the child.'

The Gonds also use the simile of the setting of curds. 'The woman's water and the man's seed mix and set like milk and curds and so a child is born.' So also the Bharia: 'After the seed has entered the womb a ball of blood collects round it, and then from the woman's body hair, bones and fat pass with the blood into the child. Then God gives a *jiv* (life, or soul) and a child is born. A mother always remembers that the child is made of her own blood and so she loves it greatly.'

These statements represent a good deal of confused thinking, natural enough in illiterate tribesmen whose opportunities for studying human physiology are confined to an occasional operation on a dead woman to allow her unborn child to escape. They cannot, for example, make up their minds whether it is the menstrual blood or the woman's 'water' (vaginal secretions) which combines with the male semen to create a child.

The tribesmen are well aware of the facts of physiological paternity—though they recognize other ways in which a woman may become pregnant—but, like their more civilized neighbours, they have been unable to solve the difficult problem of the relation of intercourse and conception. 'The farmer ploughs for a hundred days to no effect, then suddenly he finds it has taken root.' 'The clouds overshadow the land day after day, then suddenly there is a great storm.' We have already studied the causes that make a woman barren, but what are the conditions under which conception is most likely to occur?

The first and most important is that a man should approach the woman on the day that sees the end of her menstrual period. On this day and on a day or two afterwards conception will occur if it is going to occur at all. Some extend the period to a whole week. One reason given for this is that in the woman's 'bag', which is full of blood and fat normally, there is more room just after the period which has emptied it of the blood and a good deal of the fat. 'When there is more fat, there is no room for the seed.' But others think that conception is due at this time to the increased vigour which has been made possible by the period of abstinence—for, of course, during the menses neither husband nor wife should have any kind of intercourse at all.

So sensitive is the woman to sexual influences on these days that on her way back from her bath a man's shadow is

enough to impregnate her, or at the least so to influence her that her next child will resemble the man and not her husband.

Secondly, the man's seed must be 'fresh and right' and there must be 'a little blood in it'. The woman must be free from disease, and both must be unhampered by the enmity of witches or the jealousy of supernatural beings.

The third condition is that the man's seed should penetrate fully into the womb and should remain there. To ensure this, some women hold their husbands to them after orgasm and refuse to let them go, 'even for as long as an hour', so that the semen will have less chance of running out of the womb.

This leads us to another very interesting and important point, the proper timing of the orgasm and its effect on conception. Some people, and notably the Baigas, believe that the male and female orgasm should occur simultaneously; but others, who consider that conception is not so much the result of the mingling of the male and female secretions as the 'setting' of the menstrual blood by the semen, say that the woman's orgasm should occur first. This, of course, is a matter of the utmost importance for the sexual technique and the happiness of those who hold it, for it means that the woman must be treated with great consideration and that the man must make love to her and stimulate her for some time before intercourse.

The point is, of course, that if the woman's orgasm occurs at the same time or after the man's, her secretions will sweep away the man's semen and thus prevent fertilisation.

'The woman's water should come first, then the man's. For the man's work is a matter of five drops, but the woman's water comes like a flood and carries it away.' 'Her water must flow out first or there is no chance for his seed to enter her womb.'

Where such a view is held a husband is not likely to leave his wife unsatisfied, her orgasm unachieved, and he will often practise some preliminary love-play to ensure her speedy tumescence—a thing unknown otherwise.

This belief has an important sequel. It is generally believed that a single act of coitus cannot effect conception, for this can only be due to prolonged intercourse between people who are in love with one another.¹ The reason for this is not so much that 'it takes several blows of the hammer to drive home the nail' as that it is only when a woman is both in love with a man and used to him that she has a speedy orgasm or any orgasm at all. 'When the rain is continuous, the river comes down in flood; when the rain falls but seldom, the river trickles slowly.'

¹ The Sema Nagas regard conception 'as normally, if not always, requiring intercourse on more than one occasion'. Hutton, *The Sema Nagas*, p. 183.

A Pardhan woman said that 'a girl must be in love with her husband to have an orgasm. If she does not love him, he may dip his bucket into her well for half an hour but he will get no water from her'. Similarly, if a girl is forced by a man whom she does not love, no child is created by their congress. On the other hand, it is said that it is only with his own wife that a man finds real happiness. 'He may lower his bucket in twelve different wells, but his thirst is only quenched when he goes to his own.'

If there is anything at all in this primitive theory, it would account for the undoubted fact that girls who are remarkably free sexually before marriage and yet rarely conceive, often conceive soon after marriage when they have settled down to a permanent partner.

But ultimately, of course, the incidence of conception remains a mystery. Perhaps it is God alone who decides when the child shall be conceived, just as later it is he who sends the 'life' into the womb and decides who it shall be. God is, for the aboriginal, as for more sophisticated people, an excellent refuge from exact thinking. Yet I believe that most of the tribesmen do not even take refuge here.¹ Certain precautions can be taken, certain methods may be followed, but at bottom the people believe it to be a matter of chance.

6. THE FUNCTION OF THE TESTES.

The tribesmen have very little notion of the real physiological function of the testes. Most people agree that they are the seat of the *jiv*, or life, probably because of their delicacy and the ease with which a blow on them can kill a man. Semen does not originate in the testes, though some hold that it passes through them on its way to the urethra. The most important work of the testes is to give strength to the penis and to effect erection.

'The testes,' said the Baiga Dhan Singh, 'do the work of erecting the penis by means of a cord. They pull it and the penis is raised up.' 'The testes,' says another Baiga, 'are only for erection. They give strength to the penis and raise it by means of a cord. But the seed is not made there. It is made higher up. Otherwise how could there be blood in the seed? You can see how it happens: if you cut off the testes, there is no more erection. If you cut off the testes of a bull, it can't go to a cow any longer. Women also have a discharge, but they have no testes.'

¹ Some Hos at Chota Nagra in the Kolhan told my assistant Sunderlal that 'it was on the day the flower dried that the seed could be sown and a harvest gained'. They insisted that no child was conceived from the mingling of seed; this happened when the woman had no orgasm at all, and only the father's seed was there, free to enter and do its work.

'When a man desires a woman,' says a Gond, 'his testes swell and this makes his penis swell also. Semen passes through the testes into the penis and is driven out.' Only in one case have I heard a suggestion that the semen came from the testes. An Asur Agaria of Lapha suggested that 'seed was born in the eggs (testes) and when they were well shaken it came out'.

Where then is semen made? According to different opinions, in almost every part of the body. It must never be forgotten that the tribal peasants are no more educated than European peasants, many of whom would find it very difficult to answer questions about sexual anatomy. There is no general tradition of knowledge about these things, everyone says what he himself considers probable.

Semen, according to certain Baigas, is manufactured in the chest. 'A juice is extracted from the food in the stomach and ascends to the chest, from which runs a tube down to the penis.' 'Seed is made in a little chamber above the urine-chamber.' 'The seed is made in a little chamber in the water-house (bladder). Then it comes by a pipe through the testes into the penis.'

'Inside the testes,' said a Bharia, 'is a bag; there dwells the semen. But it is not made there; it is made in the head. When a man goes to a woman, then from the head the semen rushes down by a tube through the testes into the penis. It is by rubbing this tube that the seed is forced out.' Some Gonds, on the other hand, thought 'the seed is made in a man's waist. There is a long bag running right round the waist; from this a pipe runs down to the penis. When the penis gets hot, this pipe raises it and the seed is thrown out. You know it comes from the waist because afterwards the man's waist is weak.'

These statements are all obviously based on personal experience. A man's waist feels weak, he imagines the libido rushing down from the brain to the genitalia, he feels the warmth of desire in his chest—and he locates the all-important semen there. But for all their variety, the general pattern of the ideas is clear enough.

7. PREGNANCY AND BIRTH IN TRIBAL MYTHOLOGY.

I have not been able to find any very satisfactory myths about the origin of childbirth and pregnancy; in what we may call the mythological period, the great tribal heroes seem to have dispensed with these more normal preliminaries to family life, and to have produced offspring almost exclusively by supernatural means. Some Baigas attribute the origin of pregnancy to Nanga Baiga and the Samduria Sisters; in Jaldar, the Baigas preferred this story:

'In Bandaogarh lived Rama and Lakshaman. They had a sister called Anjni. There were seven houses there. The two brothers used to go to piss in the seventh house.

They told Anjni that she must never go there. One day they went out hunting. Presently their sister became curious, she went to the door, she opened it, she looked inside, she saw red spinach growing. How she longed for it! She went in and picked some, put it in the fold of her sari, she went home and cooked it quickly and ate. Next day she was pregnant, she could not eat her food. The brothers came back, they were puzzled. There was no man in that place, how could this have happened to our sister? At last she told them. They were very angry and took her out into the jungle and left her there. In nine months the baby was born.¹

It is curious how often the tribesmen attribute the origin of nearly everything to do with sex—menstruation, pregnancy, childbirth, the sexual passion itself—to the Hindu deities who otherwise play little part in their mythology.

The Dhobas, who are close neighbours of the Baigas, had a different story :

‘When Parvati became pregnant she cried, “Let this spread to every woman in the world!” So Mahadeo came and blew in the ears of men and put his seed into them through the ears, he blew also in the ears of the women and put Parvati’s water into them. After that day women began to be pregnant and to bear children. And still today those Dhobas who are childless declare that in a former birth they were not disciples of Mahadeo.’

Primitive embryology diagnoses the onset of pregnancy by the cessation of the menses for two months, sensations of drowsiness and heaviness, lack of appetite, vomiting, swelling and darkening of the breasts, and sometimes an aversion to sexual intercourse. Tribal knowledge about the formation of the embryo is gained partly from observation of abortions which are fairly frequent, and partly from the custom of cutting open the belly of a dead woman to allow the soul of her unborn child to escape. They describe the gradual progress of pregnancy as follows:—

‘During the first two months the blood is forming and setting like a pot of curds. Then if the child is a girl, in the third month the bones are formed, in the fourth the skin

¹ The Gonds of Betul also attribute the first pregnancy to an act of disobedience. In the place where the first brother and sister lived and went to wash ‘the green herb called Pokra had sprung up. The girl says to her elder brother, “Dada, very tasty salad has sprung up. If we were to eat it, it would be a good thing.” The boy says to the girl, “Sister, one ought not to eat salad which grows in a nasty place.” He fenced the place with thorns, but she secretly went there, picked the salad, boiled it, and ate it. From that day she conceived and became pregnant’.—Trench, *Grammar of Gondi*, ii, p. 2.

and the life come to it, in the fifth the body has arms and legs and in the sixth month hair.

'A boy is slower. In the first three months the blood gathers slowly, then come the bones, the skin, the arms and legs and not till the seventh month the hair. The life comes to a boy in the fifth month.'

A Pardhan of Patan told us that first of all the chest of the child was formed, but he agreed that the hair came last of all. 'From the father's water comes the bones and the fat, from the mother's water the blood and the skin.' This is an idea common among Hindu villagers, and I doubt if many of the tribesmen are acquainted with it.

The quickening is naturally a matter of the greatest interest and excitement. It is expected, as we have just seen, in the fourth or fifth month. It is supposed to come at the same time of day as the child was conceived; the child will be born and will die at the same time also, unless the time-programme is interrupted by witchcraft. The child is believed to turn right over every day. 'In the womb the child moves its hands and feet. It nudges the mother with its elbows to show it is tired.'

8. THE PREGNANT WOMAN.

When a woman is known to be pregnant she at once becomes an object of consideration. On the whole, people go out of their way to be good to her. Society strongly condemns the rough and inconsiderate husband.¹ The woman's most fantastic cravings are sympathetically treated. She is given only light work, though it is agreed that she should remain active. 'If she sits still or sleeps all day,' said a Pardhan grandmother, 'she will have a hard delivery. But she mustn't walk too much or carry heavy loads. Her husband mustn't beat her, for if she weeps a lot the child will die.'

Many men, indeed, find their wives gain an added attraction at this time. One man was entranced with the shape of the enlarged belly. Sexual intercourse generally continues for a long time, sometimes till the seventh or eighth month. In this, perhaps, husbands are hardly as considerate as they should be. The woman, however, is often allowed to go and stay in her mother's house for considerable periods and, if in her husband's village there are not enough female relatives to help her through her confinement, she is often sent to her mother's house some fifteen days before the child is expected.

In a number of cases, which I have personally observed, when the husband bullied his wife and was definitely unkind

¹ The Hos provide every possible comfort for the pregnant woman and she is sometimes allowed to go and live with her parents. (Majumdar, *A Tribe in Transition*, pp. 67 and 70.)

to her, the cause was usually jealousy and a doubt whether the unborn child was really his. Thus Ballu, a Pardhan, beat his wife and drove her out of the house, for he was tormented by the thought that the child—which died soon after birth—was another man's. Halku also constantly abused his wife—about the paternity of whose child there was perhaps a reasonable doubt. But when Rupa, already pregnant, left her husband to marry an old lover, the latter accepted the situation philosophically and declared—and perhaps believed—that the child was his.

The precautions observed during pregnancy are of the usual magical type and are intended both to protect the child and to ensure an easy delivery. There does not, however, seem to be any ceremony corresponding to the Dorho-jo-dom of the Kharias¹ or the Pata Yaku of the wilder Veddas for the protection of the young mother.

There are not many restrictions on diet. The Baigas avoid their favourite *kanhia-kānda*, for it is believed to cause abortion. The Gonds do not eat goat's feet, for fear the child's joints will make a creaking noise like a goat's, and they take sparingly of chillies for fear the child's eyelashes will be scorched off. Butter-milk is better avoided, or the child may be born covered with a white secretion which will have to be cleaned off with flour or ashes. The Pardhans say (and doubtless many of the other tribesmen also) that a pregnant woman ought not to eat a roasted rat, or the child will get hair like a rat's; or an egg, for if she does, the perineum may be ruptured 'and she will be useless to a man'; or wild pig, or the child will 'lie quietly all day long on one side as a pig does'. The Pandos of Korba and Matin do not give a pregnant woman wild tomatoes—which may cause swelling of the joints, or chillies—which will give the child boils and pimples later on, or goat's flesh—which may give a cold in the head. Beans, brinjal, potatoes are also avoided—not a great hardship, for these are not part of the regular Pando or any other tribal diet.

¹ Roy's account of the Kharia ceremony is of the greatest interest. It is a rite which is performed at the first pregnancy or when a woman invariably is unfortunate with her children. Its purpose is to expel the Dorho spirit from her. It is performed in the house of her parents, and is an elaborate exorcism, sacrifice and dance. Roy quotes a remarkable song:

O Sun-Moon! O Ponomosor!
 May this woman get twelve sons and twelve daughters.
 Like elephant's tails are her waist-belts; like worn-out brooms
 are her full breasts.
 You spoke to each other like man and wife;
 Like man and wife did you behave.
 May you have twelve sons and daughters.
 O Thou Simbhu-Dae! O Thou Dorho-Dae!

9. GENERAL PRECAUTIONS DURING PREGNANCY.¹

During an eclipse, the pregnant woman is exposed to great perils: unseen mysterious forces are at work. To protect her, members of the family throw any useless pot they can find out of the house crying, 'My child is broken!' The idea is that the hostile spirits, hearing the crash of the pot, will think that really it is the child who has been killed, and will not trouble it any more. The pregnant woman must remain indoors, or the child may be born deformed. Sometimes they take a little soot from the bottom of a cooking-pot and put some on the left buttock and left ribs of the woman. This saves the child from being born lame or hunchbacked. The Pardhans put the soot on the navel instead.

The Baigas forbid pregnant women to sleep on a sack—or the child may get smallpox, to step over a pig-trough—or the child may suffer from rickets, to step over a *sikka* (the string net for carrying loads)—or the child may be born with six string-like lines across its forehead. These rules are also observed by other tribes who add that a pregnant woman should never be allowed to see a snake—or the child will put its tongue out and waggle it, at least until it is three months old.

The pattern of observances in the Maikal Hills is almost the same as among the Chota Nagpur tribes. Like the Birhors, these tribesmen forbid the pregnant woman to sleep in the jungle or out in the open in a courtyard overshadowed by a banyan tree (where there might be a *raksa* or *churelin* living), the *bahera* tree (where there might be a *dāno*), or the *semur* cotton tree (where there might be a *raksa* or *dāno*). Nor may she eat the head of a sacrificed animal. She must not be allowed to see a funeral procession—whether it be the men carrying out the corpse or

¹ A full account of Birhor pregnancy rules is given by Roy. The woman must not lie in the courtyard for fear the *puni* bird or evil spirits may fly across her body—when the child would be born deformed. She must not go near rivers where the *churel* live. She should cover her belly with a cloth when going out of the house. She must not eat stale rice. She must stay indoors during a thunderstorm. The head of an animal or fowl sacrificed to the spirits, other than her own, is taboo to her. (Roy, *The Birhors*, pp. 215ff.)

Gorer also gives a long list of such precautions observed by the Lepchas; specially interesting are those enjoined on the father. (*Himalayan Village*, p. 284.) Majumdar gives a similar list for the Hos. (*A Tribe in Transition*, p. 69.) On the other hand, we read that the Hill Kharias have no special taboos or precautions at this time (Roy, *The Kharias*, p. 109), and Grigson says that 'pregnancy among the Hill Marias is attended by no taboo either for man or wife, so far as I could ascertain'. But a little later he says that it is taboo for her to pick or break anything growing. (Grigson, *The Maria Gonds*, p. 263.)

Memi women must not eat the flesh of a cow or sow which was pregnant and died. (Hutton, *The Angami Nagas*, p. 341.)

the women going to bathe.¹ Such a sight might well cause an abortion as might the sight of the little ceremony when a widow breaks her bangles, or even the distant view of smoke rising from a funeral pyre.

Birth is as dangerous as death; a pregnant woman will abort if she watches another's delivery or sees a young mother fresh (that is, within six days) from child-bed, or even approaches the place where a child has just been born. She must not watch a menstruating woman washing her dirty body-cloth—or she too will suffer a discharge of blood and so miscarry. Agaria women have to take special precautions in the smithy; they must not rake out the liquid iron or the child also will 'pour out like hot iron'. A Khuntia Chokh Agaria told me that 'a pregnant woman must not open the *hagān*-flue, for in the belly of the furnace is the child iron, and as the iron excreta pours out, so might the child in the womb come out as excreta'.

A curious rule forbids a pregnant woman to urinate in a rat's hole. No woman should do so, but a pregnant woman who is likely to be confined to the house probably suffers more from the temptation than others. One day in Ghatabara a tiger was about, and a woman was afraid to leave the house. There was a convenient rat's hole in the floor; she urinated into it; the rat came out, ran up her leg, bit her clitoris and caused an abortion. It is equally dangerous to urinate into a snake's hole or an anthill, for the snake may run up the leg into the vagina.

To ensure an easy delivery, a woman should be 'open-handed' and should be careful never to close anything or tie a knot.

'She must not be mean,' said some Pardhan women. 'Even if a dog comes to the house, she must give it something. If she is giving food to anyone and finds she has taken too large a quantity from the store she must give it all, she must not keep any back. She must not let grain fall back into the basket, she must not close her hand over her food.'

Agaria women should not plaster the hole in front of the furnace. Gond women should not plaster the top or the arch of the grain-bin or put on their wrists the lac bangles that have to be closed round the arm. The pregnant woman should not sew or she may stitch up her vagina. She should not sit in the threshold of the door, thereby closing it. She should not fix a cover on an earthen pot. She should not step across the little rough threads of the string that is used to make beds or seats—if she does the placenta will be retained and she will die. She must

¹ So also among the Bhuiyas (Roy, *The Hill Bhuiyas*, p. 179) and the Birhors. (Roy, *The Birhors*, p. 218.) The latter must not touch a corpse while it is in the house.

not tie the mouth of a bag. She must not kill anything, not even a small insect.

All women avoid horses, and are careful not to step across the rope by which a horse is tethered, or to give it food. For as a horse is pregnant for twelve months, her own pregnancy may be similarly extended.

Except that a pregnant woman should be careful about climbing trees or crossing a river¹—especially the Narbada River which is a virgin and, if the legends are to be believed, a frustrated virgin and apt to be jealous—there are few restrictions on her movements. If she is wise, she will carry an iron sickle as a protection against evil spirits, or she will put on the little finger of the left hand a ring of date-palm leaves and a few *bhoir* thorns in her waistband and take a stick of castor wood in her hand. But otherwise—‘she has a flower inside her,’ as a Pardhan said rather charmingly. ‘She can take it anywhere, there is nothing unclean about a flower. She can even go to the shrine of the gods: the gods delight at being offered flowers.’

The pregnant woman is herself full of a mysterious power. It is dangerous to let her shadow fall on you, unless you want red and smarting eyes. Her shadow falling on a snake may make it temporarily blind: I remember well how when there was a snake in my house which we could not catch, the villagers wanted to bring the pregnant Sauni to look at it in order to put it out of action.²

On the other hand, if a girl in her first pregnancy blows seven times on the eyes of a sick man early in the morning of a Wednesday or Saturday, he will recover. When Ahilya was pregnant with her daughter Ram Kali, she did this to three people with good results.

10. THE CRAVINGS OF PREGNANCY.

During pregnancy the primitive woman of the Maikal Hills—like her more sophisticated sister—passes frequently into a state of nervous stimulation, of which one symptom is the craving for things forbidden or unattainable.

These cravings usually affect women from the earliest stages of pregnancy, though this fact is somewhat obscured by the belief that they are not due to the woman herself but to her unborn child, and are thus only evident after the quickening.

¹ The Lakhers must not cross any big river, or ‘the spirit of the river will seize the soul of the unborn child’. The Lakher woman must not dance during pregnancy, and if the father dances, he must not stamp with his feet ‘lest he should trample on the spirit of his unborn child’. (Parry, *The Lakhers*, p. 382.)

² Cp. Crooke, *Popular Religion and Folk-lore of Northern India*, ii, p. 143.

It is probably for this reason that the Sidhauri rite, which seems to be definitely associated with the cravings, occurs in the fourth or fifth month, though technically it should take place earlier.

The cravings of pregnancy have received a considerable amount of attention in Hindu literature, and are specially prominent as a motif in Hindu folk-tales.¹ The word for such cravings is *dohada*, which means 'two-heartedness', and a woman 'with two hearts' was called *dvihrdaya*. The reason for this was, of course, the two hearts and the two wills that co-exist in the pregnant woman. The view seems to have been that 'any wish which the woman may have is merely the will of the embryo asserting itself and causing the mother to ask for what it knows is necessary for its auspicious birth'.²

Ancient Hindu culture with its passion for classification and its genius for romance had a fully developed theory of the *dohada*, especially with reference to the future of the child. Thus, a desire to see a king prophesies the birth of a child who will be wealthy and distinguished. In fiction also, the *dohadas* are frequently used to diversify and enliven the plot. The heroine may have longings that will injure the husband, prompt him to deeds of valour, or may be feigned by her to achieve her purpose. In Hindu fiction women desire to drink the moon, visit distant holy places, fly in magic chariots, and even to eat the limbs of their husbands. The longings of the Gonds and Baigas are more modest.

I have not found among the tribesmen any belief in the *dohada* of animals or trees, nor any idea that the kind of craving indicates the character of the unborn child, nor are any of them of such a kind as to injure the husband. There is no reference to the *dohada* in any of the folk-tales or songs that I have collected. I have not been able to find any connection between the cravings and the totemism of the tribesmen.³

The tribesmen do not seem to have any satisfactory mythological explanation of the cravings in their myths. The only reference I have found is a brief Baiga story :

'When Parvati was pregnant the child's soul within her longed for earth. The ground was white in the place where Mahadeo went to urinate. Parvati went there, and ate the earth, for she liked the white colour, and it was salt and tasty. From that day all the women of the world suffer from these cravings.'

¹ The literary aspects of this subject have been fully treated by Bloomfield (see his articles in the *Journal of the American Oriental Society*, Vol. xxxvi, p. 59 and Vol. lx, Pt. I, pp. 1-24) and by Penzer in *The Ocean of Story*, i, pp. 221ff.

² Penzer, *op. cit.*, p. 221.

³ As Frazer thought might be possible. (See *Totemism and Exogamy*, iv, p. 64f.)

Primitive embryology attributes a considerable degree of activity and even consciousness to the unborn child. 'When it is quickened it opens its mouth, it seeks something to eat, the mother must satisfy its hunger.' 'It is the life within that desires these things and the life must be fed.' 'The child,' said a Bharia, 'opens its mouth and its saliva goes into its mother's mouth which waters at everything it sees.' But this life of the child is still a strange and alien thing, and that is why it seeks food alien to humanity.

There is a curious belief among the Gonds that the first mouthful of food taken by the mother at every meal goes straight into the mouth of the quickened child. The Gond women of Sanhrwachhapar have an incident to prove this. 'A pregnant woman was stealing *urad* pulse in a field and eating it as she did so. The owner of the field caught her and beat her so hard that she died. When her belly was cut open (to allow the soul of the unborn child to escape) *urad* was found by the child's mouth.'

The cravings take many different forms. Sometimes women simply desire special kinds of ordinary food.¹ Samlu, a Pardhan girl, could not eat the usual *kodai*, but had to have rice. Ahilya, a Pankin, could only take plain rice; if it was dressed in any way, she rejected it. Many women demand *bharra* at this time; others ask for meat, *roti*, milk, curds, *chila roti*, *puri*, *tattri*—with a preference for sour things, buttermilk and the things cooked in it. Agaria women long to eat leaves, especially the leaves of the *sarai*, the tree used by them for making charcoal.²

More notorious is the appetite for repugnant or inedible things, particularly for earth and ashes, excreta and the beef which is forbidden to most of the tribes. Many women crave for earth, both the ordinary earth of the fields and the 'white earth' which is used as a whitewash of the houses. They fry it and swallow a little. Some put dry ash in their mouths, chew it and spit it out. They think that if they eat earth, their child will get fat. Pardhan women are said to have a special desire for the bits of dirt which are picked out of the *kodon* while it is being cleaned before being cooked.³

There are many stories about women's craving for excreta. 'In Tikai Tola—near Patan—a woman was walking by a stream,

¹ The Nayadi women of Mysore are said to crave for the flesh of the monkey and the jungle squirrel in the sixth month. (Iyer, *op. cit.*, iv, p. 278.) Lakher women 'are specially addicted' to eating clay, but this is edible clay used also at other times. Lushei women also eat it. The Lakher women also crave for bitter fruits. (Parry, *The Lakhers*, p. 381.)

² The *sarai* is the special tree of the Agarias, as the *saja* is that of the Gonds.

³ I have been told that women in Bengal sometimes make the earth up into ornamental shapes and eat large numbers of them.

she saw excreta of a colour she loved. The *jiv* (life) within her desired it, but she resisted and went home. But her whole body swelled up. She was too modest to say what she wanted, but at last the family understood. They let her look at it, and she recovered.' Another woman who was craving for excreta was given a curry mixed with gram and told that it was what she desired. She ate it and was satisfied.

Other women have frequent dreams of excreta during pregnancy,¹ but they believe that if they were to eat it during a dream, and still more so if they ate it while awake, the child would die. As it is, the dream is of good omen.

Although beef-eating is now forbidden to most of the tribes, many of them eat it secretly, especially the Baigas and Agarias. But pregnant women demand it openly. The Gonds and Pardhans delight in stories of Brahmin women who suffer from this appetite. 'A Brahmin and his wife were walking in the fields. The woman was pregnant, she saw a Chamar and his wife cutting up a cow. The Brahmin woman said, "I must eat some of it." But her husband was shocked. "Never!" he shouted and dragged her away. But presently she escaped him, ran to that cow and put a little bit of the flesh in her mouth. The husband followed and beat her till she died. When they opened her belly, they found the cow's flesh in the mouth of the unborn child.' Once when a Gond woman demanded beef, her family got some from the Chamar, cooked a little, wrapped it in seven layers of cloth and gave it to her to smell.

It is very dangerous to deny a pregnant woman her desire.² The immediate result is a swelling of the whole body, and unless this is cured at once, it is believed that the child will be born deformed, perhaps with a torn ear, and will long all through life for the things that have been denied.

Society, therefore, is very sympathetic to these cravings. It is not the mother, but the irresponsible 'life' within her, that breaks the tribal rules. A Gond woman who ate beef was not penalized as she would have been in the ordinary way, nor was another who had a meal in a Chamar's house—a tribal offence that would normally involve the woman and her whole family in excommunication.

In the fourth or fifth month, the cravings are socially recognized and satisfied in the Sidhauri rite. The woman's mother, or her brother, comes with seven kinds of food, including meat, *chila roti*, *sohāri puri*, and gifts of cloth, bangles, woollen balls for the hair and other finery. The woman sits in her mother's lap and is fed ceremonially. She is offered the new clothes and

¹ The excrement dream is generally considered lucky in all parts of the world and prophesies wealth to come.

² Parker has a story illustrating the dangers of frustrating the *dohada*. (*Village Folk-Tales of Ceylon*, ii, p. 388.)

touches them in token of acceptance, and they are then put aside till the child is born.¹

The Sidhauri food satisfies the mother's appetite and strengthens the child. 'If we don't give it, the child will dribble all its life with desire for it.'

11. THE SEX OF THE UNBORN CHILD.

The tribesmen are not greatly exercised about the sex of their children—they have no dislike of girls and sometimes indeed prefer them—but they are naturally curious about their unborn babies and believe that they have various means to diagnose their sex. They carefully observe every possible indication, though many people are sceptical about the result and express their doubt in proverbs:

'He has loaded his bullocks, but who knows whether the sacks hold wheat or rice?'

'Who knows what fish is in the deep water? Only when you catch it and bring it out can you tell whether it is *saur* or *kotra*.'

But nothing can check the curiosity of the mother or the gossip of the old women. Among the indications they look for are these—

If the husband is known to have been regular in his attentions to his wife, a girl is expected; if he only goes to her occasionally, there will be a boy. This corresponds to the English idea that 'it takes a real man to get a girl'.

The Gonds and Baigas say that there will be a boy if the mother is weak during pregnancy, a girl if she is healthy and strong. This agrees with the Birhor belief,² for example, but is the exact opposite of the ancient Hindu idea which has been epitomized by Meyer. 'The beautiful blooming complexion of the mother is spoiled by a female fruit in the womb, probably from envy; while the complexion keeps its freshness and beauty when a boy is on the way.'³ Wherever there has been much Hindu influence, the tribesmen have adopted the Hindu view; for instance, I found the Kawars in Bilaspur saying the opposite of the Baigas in Mandla.

If the pregnant woman drags her right leg while walking, she will bear a girl; if the nipples are unusually black, she expects a boy.

¹ Among many tribes in South India, a ceremony is performed in the seventh month of pregnancy, but this appears to aim not at feeding the child, but at expelling demons from the mother's body. Such is the Garbha Bali of the Cheruman, the Kanni Kattodu of the Badaga, the Vaguthu Pongal of the Kanikar, the Puli of the Mukkuvan fisherfolk, the Ozhinnukalayuka of the Nayadi. (See Thurston and Iyer, *passim*.)

² Roy, *The Birhors*, p. 221.

³ Meyer, *Sexual Life in Ancient India*, p. 368.

If the quickening occurs after four months, it will be a girl; if after five, it will be a boy. Similarly a girl will be delivered in nine months, a boy in ten.

With the Hindus, Greeks, Romans, Jews and many other races, the tribesmen agree in allotting the right side to the male; if the embryo is felt on the left, there will be a girl.¹ The Andaman Islanders, however, believe that if the mother feels the child on the left side it is a male, because men hold the bow in the left hand; if on the right side it is a female, because it is in her right hand that a woman holds her fishing net.²

The Badis of Mandla say that if the mother's belly is round, it means a boy; if it is long, it means a girl. But the Pardhans say just the opposite: a belly 'flat as a *chapāti*' means a girl.

Some of the more sophisticated tribesmen say that if a woman menstruates during the 'dark half' of the month, there will be a daughter, for a daughter goes from her mother's house at marriage and leaves everything dark behind her. A boy, on the other hand, is likely to be born to a woman whose period occurs in the 'light half' of the moon, for a son lives at home and keeps it always light. This does not, however, sound like genuine tribal tradition; it recalls to mind the elaborate Hindu schematizations, the belief, for example, that intercourse on 'even' nights will produce a boy, on 'odd' nights a girl, on the fourth and sixth days after the commencement of the period a boy, on the fifth day a girl.

Finally, we may note that if, as the child is being delivered, it presents face downwards, the assistants cry out that it will be a boy. A girl is supposed to present face upwards. There is the same idea at the bottom of the custom of laying a man face downwards and a woman face upwards on the funeral pyre—these are the respective positions in the sexual act.

Dreams may also indicate the sex of the unborn child. But the interpretation of the dreams varies considerably. Thus, some say that to see a cucumber in your garden means a boy—and indeed that is what we would expect from the obvious symbolism. But others say it means a girl. When Ahilya was bearing Ram Kali, she frequently saw a cucumber and believed that had she eaten it in her dreams the child would have died. A cucumber may possibly suggest a girl because when it is sliced in half there is a slight resemblance to the vagina. In the same way to dream of the tamarind means a girl, for its fruit opens out like the lips of the vulva. On the other hand, to dream of a mango, a *bhoir* fruit, a snake or a monkey prophesies a boy.

¹ Meyer gives a full account of the traditional Hindu ideas on this subject. (*Op. cit.*, pp. 366ff.)

² Radcliffe Brown, *The Andaman Islanders*, p. 90.

After the birth of the first child, it is comparatively easy to diagnose and to control the sex and number of future children. This is done by examining the knots on the umbilical cord. The number of these indicates the number of children that may be expected; if there are very many, there will be many children but they will die. If two knots are joined together there will be twins. If the knots are black and incline downwards, boys will be born; if they are white or pink and incline upwards, there will be girls. Some Agarias also told us that if the knots were well separated there would be girls, if they were close together there would be boys.

If a boy has been born, and the parents want more boys, they bury his placenta upside down to the way it fell. If a woman has only had daughters and desires a son, she may be given (but without her knowledge) a scrap of a boy's umbilicus to eat—but this is a rare and even a dangerous expedient. It is better to make what is called a 'mixture'. After the child has been born, the attendants bring rice, *kodon*, *kutki*, gram and wheat, anything in fact that makes a thorough jumble, mix it all together, put it in a winnowing-fan, spread a cloth over it, and lay the child on it. Then the next child will be a mixture, of the opposite sex.

There is among the Gonds a vague belief, perhaps not very widely held, that a year in which there is an abundance of rice will see the birth of many girls, and a heavy *kodon* harvest is accompanied by a high proportion of boys.¹

12. THE ONSET OF LABOUR.

It is impossible, of course, for a man to make direct observations of the course of a tribal woman's labour and delivery. I have indeed been invited to be present, but as this would have involved a serious breach of taboo and would probably have added to the mother's anxieties, I thought it wiser to refrain. My wife, who has often been present at these times, and various Baiga and Pardhan friends have supplied me with information which I believe is reasonably accurate.

The woman is often warned of the approach of labour by the 'false pains' which are caused by slight preliminary contractions in the muscular tissue of the uterus. But many women attribute these pains to the hostility of Dulha Deo, the marriage godling, who is believed to be jealous of pregnant women, and therefore do not prepare themselves.

¹ Among the Lepchas the sex of a child is fixed after five months—a boy is always higher in the womb. But the sex of the child can be changed by the prospective fathers for the sex of another child if they exchange anything. Girls are known who ought to have been boys and who retain the boy's character and will till they sleep with a man. See the whole very interesting passage, Gorer, *op. cit.*, p. 285.

They believe that it is the child itself who initiates the labour. 'The child,' said a Pardhan woman, 'moves its hands and feet in the womb. It nudges the mother with its elbow to show that it is tired.' 'When the time comes,' said a Baiga woman, 'the child opens its eyes and says, "O Bihi Mata (the spirit who has been with it all the time in the womb), take me out! Give me air! Put me in the sun!" Then Bihi Mata tries to push the child out, and the child also struggles, and the mother's pain begins.'

'When the shadow of the ninth month falls upon it,' an Agaria told me, 'the child in the womb opens its eyes, sees darkness all round, is frightened, stretches itself, tries to find its way out. That is why the mother suffers.'

When the first signs of labour appear, one of the assistants dips her hand in oil and presses it against the wall. If all five fingers give an equal mark, they believe that the labour will be accomplished without difficulty. Sometimes they let a little oil run down between the breasts and over the belly of the parturient woman. If it goes straight to the navel, all will be well. If it runs crooked, they prepare for an emergency. If the oil divides into two streams, they expect twins.

13. THE PLACE OF BIRTH.

In the Maikal Hills the tribesmen are very casual about the place of birth. No separate or special houses are made for the lying-in woman, there are no special doors by which she should come in or out, and the place where a birth has recently occurred is taboo only to a pregnant woman.

Generally birth takes place in the ordinary sleeping room of the house; sometimes the floor is not even cow-dunged in preparation. Of course, where the family is sufficiently well-to-do to have a 'spare room' the woman is taken there, but this is not for any religious reason, but simply for convenience.¹

¹ Very different is the situation in other parts of India. The Hos, for example, often make a temporary hut and although this is said to be purely for convenience, the walls are carefully decorated with tools, weapons and cowrie shells, while outside thorn bushes and branches of pipal are placed around. 'The burning fire, the iron tools, the thorn bushes, the magically seasoned sticks are meant to protect; and the cowries, the net and the branches of pipal are fertility emblems.' (Majumdar, *A Tribe in Transition*, p. 67.)

Many South Indian tribes have special huts for delivery corresponding to the special menstruation huts. The Kotas, for example, have this arrangement (Thurston, iv, p. 23) and the Cheruman erect a small hut near the living house. (Ibid., ii, p. 74.) Among the Marias, birth usually takes place in the menstruation hut. (Grigson, *op. cit.*, p. 26.) The Dhelki and Dudh Kharias confine women for a week before delivery in the Sutna Kuria or Kocho Dolko Kuria, into which no man is allowed to enter; this is often simply part of the house screened off by leaves.

14. THE ASSISTANTS.

There are no professional midwives in the Maikal Hills. The lying-in woman is usually assisted by her own relations. If her husband is living in a village where there are no relations or few friends, the wife is sent to her 'mother's house' for delivery. When possible, an older and experienced woman is called in to help. She need not be a relation at all, but Gonds and Baigas insist that she should be of the same tribe. When such a woman is available, she is called the Suin. But even she is not admitted to the house in the early stages, for fear the 'labour will shy at her and stop'.

Of course, there are now a number of Gonds, Kawars and Dhanwars more particularly, who have become sufficiently sophisticated to demand the services of a low-caste Hindu Dai. Where there is a Chamar (leather-worker) or Nai (barber) in the village, his wife will probably attend for a small fee. But the true Baigas and the orthodox Gonds and Pardhans would be excommunicated for employing a woman of this kind.

The Pardhans say that no unmarried girl should be present, for she will embarrass the woman and perhaps hinder the course of labour. But this rule is not always followed, and I know of young Gond girls who have watched the entire process of gestation. The woman's own mother should not be present, for 'she will see the harvest of her son-in-law's penis' and that would be a shameful thing for her. But she sits at some distance and comes in directly the child is delivered.

No man may be present except in an emergency when there are no woman assistants. 'A man fights in the open air with

The Lepchas allow delivery in the kitchen (Gorer, p. 286) and the Memis allow it 'on the floor to the left of the central hearth, as you enter the living room'. (Hutton, *The Angami Nagas*, p. 342.)

The Hill Maria mother 'is expected to do everything for herself', her assistants 'must not touch her or assist the delivery' (Grigson, *op. cit.*, p. 264) but a Bison-horn Maria woman may be helped by any experienced woman in the village (p. 270). The Dhelki and Dudh Kharias who act as midwives for their own people are called *sutrain*: among the Bhuiya they are called *suruni*.

Among the Voddas, 'birth takes place in the cave; no screen is put up and any woman will assist. (Seligman, *op. cit.*, p. 101.) In the Kar Nicobar, 'young mothers' come to massage, and learn their duties by experience. (*Census of India*, 1931, Vol. I, p. 186.)

In South India, the Palayan girl is helped by her mother and other members of the family (Iyer, *The Cochin Tribes and Castes*, i, p. 108), the Cheruman girl by her mother (Thurston, *Tribes and Castes of Southern India*, ii, p. 74), the Chenchu woman by any experienced woman. (*Census, op. cit.*, p. 211.)

In Assam, we find a totally different tradition which allows men to be present. Among the Memi, in fact, only the father may be present. (*Angami Nagas*, p. 342.) Among the Lakhers, the husband may help if necessary. (Perry, p. 338.) The Rengma mother, however, is usually attended by her mother or mother-in-law. (Mills, *The Rengma Nagas*, p. 200.)

sword and spear: a woman's battle is in the dark, behind shut doors,' said a Pardhan woman.

15. THE COURSE OF LABOUR.

Perhaps the most vivid account of childbirth that I have heard was given me by Jai Gopal; a little Pardhan boy of about five, who was present at the birth of his younger brother. 'What happened?' I asked him. He thought for some time and said, 'Fire'. He referred to the lighting of a fire to warm the mother, and perhaps to banish evil spirits. 'And then?' Another long pause. 'Blood!' Another pause. 'Water!' Another pause. 'Pain. Much pain.' Yet another pause. 'Life!'

For the sake of completeness I will repeat here the brief record of a normal delivery which was given me by Mahi, the Baigin, and her friends, at Sanhrawachhapar and originally recorded in *The Baiga* :

'The woman walks this side, she walks that side. Her friends shake her belly to and fro. If there is much pain, they break the cord round her waist.' When she is about to be delivered, they seat her down on the ground; one woman squats behind her and grips her shoulders, another sits in front and puts her feet against her thighs. In this way they hold her steady. They rub her body and thump her back. The parturient woman holds her breath, and bears down on her belly, giving little grunts 'as though she were relieving herself'. When the *liquor amnii* comes out, they immediately make a roll of cloth and place it under her. On the presentation of the vertex, they remove the cloth and let the child fall on the floor. No one apparently catches it, the assistants pay more attention to the mother than to the child. If the placenta does not present immediately, they take the mother's hair and put it into her mouth, the idea being that the effort to expel it will bring it out. Then the mother stands up with her legs apart, and one of the assistants covers her own head with oil and rubs it against the mother's belly till all the blood has flowed out.¹

I will now give a rather fuller description largely in the actual words of the three old and experienced Pardhan women who told it to me :

¹ In some tribes the mother supports herself by holding on to a rope hung from the roof. The Lepcha woman squats, holding a rope suspended from the ceiling. (Gorer, p. 286.) The Angami woman 'delivers her child hanging by her hands to a head-band (which is used for carrying loads) which is fastened to a beam in the house, her knees being clear of the ground.' (Hutton, *Angami Nagas*, p. 214.) So also the Lakhur woman. The Khond woman hangs on to a rope, a method which is said to be described in Telegu folk-songs. (*Census of India*, *op. cit.*, p. 6.)

The woman begins to groan and cry. 'But she doesn't weep, no tears come from her eyes.' Then a little blood passes from her. She sits almost in the lap of one woman and leans against her. Two others sit on either side and hold her hands. The Suin sits in front, putting her feet against the inside of the mother's thighs and holding her legs 'in order to open the vagina'. The woman behind massages the mother. 'They all cry *Lē kānk*, go on, groan!' And they all groan together to help her. Sometimes the older women say, 'You didn't call us when you had the man, why do you call us when you're having the child?' and 'You enjoyed yourself when it started; well, you've got to suffer at the end, and 'You never made all this fuss when you were sleeping with your husband'.

Now the *liquor amni* is expelled. The Gonds call this *umma pāni*, 'the only heavy load the child has yet carried'. For the child is cursed to carry water on its head for nine months. Then it gets tired and throws it down the passage to show that it's coming. On the other hand, Agarias have told me that 'the child lives in water to keep it fresh'.¹

After this, the assistants make a circular roll of cloth and seat the mother on it. She must now move to one side or the other for fear that the child be born crooked. If the child is slow in coming, the Suin fills the mother's mouth with pulp from a bitter gourd; the attempt to expel it often facilitates delivery.

When the child is born it is allowed to lie where it is for a time. The mother is made to stand up and the assistants massage her belly in order to express the placenta. This is usually expelled fairly soon, and they then proceed to the division of the umbilical cord and its disposal in the manner we describe elsewhere.

Great amusement is caused if the woman excretes during labour. It is said that this is a penalty for waste and untidiness: if a girl is making mud for building a house and fails to use it all, but leaves bits of it lying about, the mud gets angry with her and affects her with these unpleasant consequences.

Now the women turn their attention to the child. They make a loud noise in its ears to prevent it becoming deaf. They

¹ The Chenchu woman is said to squat with her legs propped up. A large stone is put to support her back, or she is held by the shoulders. (*Census of India, op. cit.*, p. 211.) So also the Vedda woman 'leans back with one shoulder or side supported by an angle of the rock and a woman behind her supports her and presses down upon her shoulders'. (Seligman, p. 102.) In the Andamans the woman 'is seated in her hut on fresh leaves. Her legs are flexed so that her knees may be clasped by her arms. The only manipulation is pressure exerted on the upper part of the abdomen by one of the attendant women. (Radcliffe Brown, *op. cit.*, p. 90.)

are careful, however, not to shine a bright light in its eyes or it may develop a squint. The Suin takes the child and shapes the head and nose—sometimes she puts her finger into the mouth and pushes the nose out from inside—she sees to the eyebrows and clears the rectum.

If the mother belongs to a Hinduized family which employs the services of a Chamarin or other semi-professional midwife, there may be some delay while she is fetched. They then take a winnowing-fan, put some rice and *kodon* in it, cover this with a cloth and lay the child upon it. But such customs lead us towards another pattern of social ideas, and we need not discuss them here.

In the Maikal Hills as among the Nagas—of whom Mills can say that ‘to give birth to a child is usually an easy thing’¹—the normal course of labour is easy and straightforward. I have seen Baiga women hard at work again the day after delivery, and it was said of a recent case in Karanjia of a primipara that ‘she did not suffer even for half an hour’.

But obstructions and difficulties occur, even if these are not very common. The child may—according to tribal ideas—be misplaced on the womb, a breech or foot presentation resulting. The child, who is supposed to take the initiative in forcing its way out, may be too rough or on the other hand too lazy. Witches can pursue the mother up to the moment of delivery and beyond. Jealous and malignant demons, rather vaguely pictured but realistically experienced, can obstruct the labour. Neglect of the precautions enjoined by tribal custom on the mother is a frequent source of trouble.

In a few cases it is recognized that the woman’s own physical development does not favour an easy delivery. Women are indeed divided into those with a *garu chhaiya*, a heavy shadow, and a *haru chhaiya*, a light shadow, and the latter are often begged to come and throw their shadows on a pregnant woman so that she may be infected, as it were, with the same happy quality. A woman of easy delivery among the Lakhers boils an egg and gives it to another saying, ‘May you give birth to your child as easily as I do always’.²

I have found no trace of the belief attributed in India to such tribes as the Korava and the Birhor that a difficult delivery is due to adultery or even adulterous desires before the mother is confined.³ The assistants persuade the Korava woman to confess her lover’s name and as she does, they put a pinch of earth into her mouth.⁴ The Hos have a similar custom. ‘But such cases,’ says Majumdar, ‘are fortunately rare.’⁵

¹ Mills, *The Rengma Nagas*, p. 199.

² Parry, *The Lakhers*, p. 384.

³ See Roy, *The Birhors*, p. 220.

⁴ Thurston, iii, p. 490.

⁵ Majumdar, p. 71.

16. REMEDIES IN DIFFICULT LABOUR.

Whatever the reason, when labour is obstructed or delayed, the assistants turn at once to physical and supernatural remedies, of which they have a plentiful supply. The first and simplest way of expelling either the child or the placenta is to put into the mother's mouth something that is likely to cause straining or retching. They use the pulp of a bitter gourd, a lock of the mother's own hair, worms and cow-dung for this purpose.

Sometimes they give a little of the herb called *batch* ground up with oil from the castor tree or ramtilla oil to drink and rub a little of it on the external parts of the vulva.

They practise vigorous massage, especially in the third stage of labour.

In an emergency an experienced woman may insert her hand into the vagina and try to bring out the child.

The Pardhan women of Patan remember one instance when 'the child died in the womb and the Suin tied a little knife to her finger, put in her hand, and cut it out limb by limb, and so saved the mother's life.'

These physical remedies are reinforced by a wide range of supernatural practices based on the principle of sympathetic magic. Things that are swift, open things, things that may be opened or divided are all useful. The Kar Nicobars, to compare one out of many tribes, think that the child is being held back by something shut in the house. So doors are opened and lids are removed. The men lift up the racing canoes of the village and let them down again, and if there are any logs or heavy articles lying about they turn them over.

So too in the Maikal Hills, the woman is made to drink water in which the barrel of a gun has been washed so that she will expel the child as quickly as the gun expels the bullet.

A woman I know was given the strange and bizarre tonic of a drink of water in which the virile member of a dog had been washed—'that as the dog withdraws his member from the bitch quickly with a plop, so the child will be delivered'.

Other draughts are made by throwing water onto the roof and collecting it as it trickles down, or by washing the husband's feet in water. A pile of rice may be divided into two parts so that mother and child may also be divided. A fire is made with wood from a tree struck by lightning, and as the mother is warmed by it the speed of the lightning is expected to pass into her.

Everything shut is opened, everything tied or knotted is undone. Holes stopped with mud are cleared, lids are removed from bins and pots, garments are loosed, cords are untied. The woman is surrounded by an atmosphere of opening, clearing, delivering that cannot fail to have a strong psychological effect.

In a great emergency the whole village comes to help. Once—and only once within living memory—at the birth of Dharmin (who is now about 45 years old) in Patan, the assistants despaired of effecting a normal delivery and as final expedient called the village to bring *dharma* water. Dharmin is a Pardhan and should not take water that has been touched by alien hands, but that did not matter now. The villagers came running and formed a long line from a small stream at the bottom of their hill up to the house where the mother was struggling with her pains. The husband, almost beside himself with anxiety, climbed onto the roof, made a hole and spread his dhoti over it. Down by the stream a virgin girl dipped a pot into the stream and passed it up the line. It had to go from hand to hand as speedily as possible, and every hand had to remain open, the pot being placed in the open palm. No one might close his fingers upon it. Nearly all the water was split on the way, but when the pot was finally handed up to the husband a few drops remained. They shouted to him not to take it in his hand, and with some difficulty he raised it balanced on his palm and then let it overturn onto his dhoti. His wife, supported by her helpers, was standing immediately below the hole, her hand upturned and her mouth open. A few of the precious drops fell into her mouth, and almost immediately she was successfully delivered of a fine baby who grew up to be herself the mother of a large family.

The Baigas have a picturesque custom. When delivery is delayed, if a girl is expected, they make a small winnowing-fan and put rice in it. They shake this up and down before the woman's belly, crying 'Come out, girl, you'll soon be cleaning rice, you'll soon be grinding, pounding, fetching water'. If a boy is expected, they take a bow and arrow and cry, 'Come out, boy, you'll soon be out in the jungle shooting green pigeon and every kind of bird'.

In some of these customs there seem to be relics of an older belief in the magic power of the husband to assist his wife in her delivery. How else are we to explain the giving of the water in which his feet have been washed, and the custom of straining the water through his cloth before it falls into his wife's mouth?

17. THE PLACENTA.

As we have seen, the tribesmen regard the foetus as formed out of the woman's blood which is 'set' by the male semen in much the same way that curds are set by some external agent. That is why the menstrual blood no longer passes from a pregnant woman. Somehow or other, in a way not clearly defined, the blood is retained in the placenta and passes on to form the child. 'The placenta,' a Pardhan told me, 'is the flower which has created the fruit, the child.' In a barren woman,

'the flower remains dry, unwatered by the blood which flows uselessly away'.

But the placenta is more than a source of food to the child: 'it is its friend, it lives with it all the time'. After the birth of the child, the placenta 'goes round and round the womb seeking the child it has known for so many months and it is very sad'. A Gond of Mawai said that 'the placenta and the liver are great friends, and when the child is born the placenta goes up to mourn with its friend and doesn't want to go out. Or sometimes the placenta seeks the lost child with its heart full of love and goes up to the liver and sticks there; then the woman dies'.

Among these tribesmen, however, the placenta generally comes out fairly easily soon after the birth of the child. The mother is made to stand up and her attendants massage her belly in order to express it. This is sometimes done by rubbing the head against the woman's stomach which she herself must not touch. Sometimes they sweep the belly downwards with a broom.

If this is unsuccessful, some hair is put in the mother's mouth or she is made to take the pulp from a bitter gourd. The retching thus caused is often sufficient to expel the after-birth.

Near Karanjia, a young Gond mother was delivered with the help of only young and inexperienced girls. They had never heard of an afterbirth, and seemed to think that the umbilical cord was no more significant than 'in the case of a cow'. They were all rejoicing that everything was successfully finished, when fortunately an old woman came in, saw what was happening, and at once stuffed hair and cow-dung into the girl's mouth and thus by her retching expelled the placenta.

Very rarely the assistants pull gently at the umbilical cord, but this method is unpopular, for they fear the cord will break and they will then have no means of controlling the placenta. In a crisis, a clever and experienced woman may insert her hand into the vagina, holding the cord between her fingers to guide her.

The tribesmen believe that even after the placenta has left the uterus but is not yet wholly expelled, it can slip back again into the uterine cavity. 'It runs back to bid farewell to the liver from which it is now to be separated for ever.' 'It is always trying to run back, it is very hard to catch.'¹

The intimate connection between the child and the placenta is often stressed. 'Life passed through the cord into the flower and the child went cold. We brought two handfuls of grass from the roof and placed the flower on it, and lit it. As the

¹ The Brahmins of Mysore consider that 'until the placenta is removed, everybody should remain silent, lest it might ascend into the womb'. (Iyer, *The Mysore Tribes and Castes*, ii, p. 375.)

flower grew warm, life flowed back into the child.' 'When Kanni of Patan was born, her life ran back into the flower, but we milked it back towards the child's stomach and she lived.'

Among the tribesmen the placenta is usually expelled very soon after birth, and the umbilical cord is then severed immediately.

The instruments used to cut the cord, the persons allowed to cut it and the methods employed to prevent haemorrhage differ from tribe to tribe according as they have come under Hindu influence. The more primitive people do not employ a professional Hindu woman of low caste, but they sever the cord themselves, with a sharp stone, a bamboo knife, a *chakmak*-flint, a broken bit of earthenware, or an arrow. They do not apply the ligature, but treat the stump with gur, ashes, *pipal* and powdered earthenware. Thus the Baiga always cut the cord for themselves, so do most of the Gonds and Pardhans; the Agarias sometimes call an unmarried Gond or Baiga girl to help.¹

But the more sophisticated tribesmen, especially those who live in villages that can boast a Chamar or Nai house, call in a low-caste woman to sever the cord; often indeed she attends from the beginning of the confinement as midwife. She cuts the cord with a knife or razor over a copper coin, and as the sharp edge of these does not lacerate and crush the arteries like the blunt instruments of the primitives, there is more bleeding and the ligature of thread or vegetable fibre is usually applied.

The cord is usually cut four fingers' breadth, or the distance from the child's knee to its heel, away from the body.

The umbilical cord is now divided; one part remains attached to the placenta, the other to the child's body. The two sections

¹ In other parts of India the customs vary considerably. Thus among the Bhuiyas the cord is cut by the father's mother with an arrow if the child is male, with a knife or bamboo if it is female. (Roy, *The Hill Bhuiyas*, p. 180.) The Kharias use an arrow or knife held above a copper coin. (Roy, *The Kharias*, p. 204.) So also do the Birhors. (Roy, *The Birhors*, p. 223.) The Veddas use an arrow. (Seligman, *The Veddas*, p. 101.) The Andaman Islanders use a knife 'formerly of cane or bamboo, but in these days of iron'. (Ratcliffe Brown, *The Andaman Islanders*, p. 90.) Among the Lepchas, 'anyone who knows how' cuts the cord with a small knife. (Gorer, *Himalayan Village*, p. 286.) Among the Khonds, the cord is cut by the mother herself. 'The right thigh of the baby is flexed towards its abdomen and a piece of cooled charcoal is placed on the right knee. The cord is placed on this and divided with an arrow. (Thurston, iii, p. 393.) In Assam, the Memi Naga mothers cut the cord themselves with a bamboo knife. (Hutton, *Angami Nagas*, p. 214.) The Western Rengmas cut the cord with a bamboo knife, the Eastern with a sharp piece of wormwood stem. (Mills, *Rengma Nagas*, p. 200.) The Mros use a steel knife, but this is forbidden to the Maghs who use bamboo. (*Census of India*, 1931, I, Pt. iii B, pp. 120 and 123.) It is obviously impossible to refer to all the tribes of India, but the above will show the great variety of custom that exists.

receive entirely different treatment—a point constantly overlooked by writers on Indian Folk-lore, with lamentable results—as when we are told by Enthoven that a barren woman sometimes swallows the umbilical cord. What she really does, of course, is to swallow a little of the stump of the cord that has been left adhering to the child's body.

The longer stretch of cord is now examined and the knots counted and their colour observed; from these it may be possible to divine the sex and number of future children. Sometimes the cord is lifted up and stretched as far as it will go, with the pious exclamation, 'May the child grow tall as this!' This will also have the effect of lengthening the period between this birth and the next.

The cord and placenta must now be carefully buried. The usual custom among all the tribes is to dig a hole on the very spot where the child was born and bury the afterbirth there. The Baigas sometimes plaster it with mud onto the central pillar of the house. The Dhobas dig a hole with a iron bar two cubits away from where the mother is sleeping. They put a little pulse and rice into the hole first. This is considered to be an invitation: 'Come into my belly again and give me another child.'

When the mother has been having children *hagai upar hagai*, excreta on excreta, one directly after another, the hole is made deep and this helps to space the confinements. A fire is then kindled on the top of the hole and, 'as it burns, so does the pain of the mother burn away and disappear'. 'If it is not burnt, the child's stomach will swell.' A curious rule ordains that no one should blow on the fire to kindle it, or the child will break wind uncontrollably all its life 'even if it goes to attend a Raj Durbar'.¹

¹ We may again illustrate the very different customs governing the disposal of the umbilical cord by examples from different parts of India. The Maria Gonds bury it 'immediately' in the rubbish heap outside the back of the house. (Grigson, *op. cit.*, p. 264.) In Mayurbhanj the Bhuiyas bury it in a corner of the lying-in room, the Juangs near the door, the Hill Bhuiyas outside (Roy, *The Hill Bhuiyas*, p. 180), the Kharias under the door (Roy, *The Kharias*, p. 205), the Bihors just beyond the threshold. (Roy, *The Bihors*, p. 223.) In South India, the Malas bury cord and placenta in a pot in the back yard. (Thurston, iv, p. 370.) The Hale Paikas of Mysore do the same and plant a coconut above it. (Iyer, *op. cit.*, iii, p. 290.) The Reddis bury it in a pit before the house (ibid., iv, p. 514), the Madigas under the eaves of the house and on the third day pour a little milk on the spot. (Ibid., iv, p. 149.)

In Assam, the cord with the placenta is buried, by the Sema Nagas, in the room or under the bed where no one is likely to tread on it (Hutton, *Sema Nagas*, p. 234), by the Rengma Nagas in the floor of the house (Mills, *Rengma Nagas*, p. 200), by the Memis in the house. (Hutton, *Angami Nagas*, p. 214.) By the Veddas it is either thrown away or buried, but is regarded as of little importance. (Seligman, *op. cit.*, p. 101.) The Andaman Islanders bury it in the jungle. (Ratcliffe Brown, *op. cit.*, p. 90.) The Lepchas 'ram it into a bamboo container which is carefully

It is important to dispose safely of the placenta and the cord. If a barren woman gets hold of it she will transfer the mother's fertility to herself. If a female animal ate it, it would get a human placenta and give birth to a half-human and half-animal litter. If a dog ate it, the child would grow up wandering and erratic as a dog.¹ Were it to be thrown away, the child too would be like something thrown away and as it would probably soon be eaten by a vulture, a similar fate would meet the child.

The care of the stump of the cord left adhering to the child's body is equally important. It is carefully dressed daily until it dries and falls off. If a girl's cord does not fall off properly, she is expected to grow up a very stingy woman. The small remnant naturally should be as small as possible: the Baigas say it grows big if it is pulled while it is being cut, the Agarias think this growth is due to the mother breathing on it. To make it small they sometimes burn it with a branch from a thorn-bush. Until the stump has fallen off, the mother must not leave the house, and she should sleep as near as possible to the place where the afterbirth was buried.²

The disposal of the stump of the cord now claims the family's attention, for this may have an important influence on the child's future. Sometimes it is thrown away near a school—so that he will be clever; or in a manure-pit—so that he will grow quickly; or in a shop—so that he will grow rich; or it is taken to a Court—so that he will be successful in litigation; or to a bazaar—so that he may have a large family. But they never reveal where it is, for barren women are always on the look out to steal it, and sometimes offer to buy it on generous terms.³

covered with a cloth. Somebody not too closely connected with the parents will throw it into the river or fasten it high up on a tree. Formerly it used to be buried, but it is now believed that if it is buried in wet ground the child will get eye disease, and if in cultivated ground the crops will be spoilt'. (Gorer, *op. cit.*, p. 287.) The Kharias of Dhalbhum are also said to throw it into a running stream.

¹ The Malas of S. India have the same belief (Thurston, iv, p. 370), but the Birhors think that should a dog or other animal eat the cord, the mother will sicken and die; if the stump is eaten, the child will die. (Roy, *The Birhors*, p. 223.) If the placenta is eaten, say the Lepchas, 'the child will suffer from skin eruptions'. (Gorer, p. 287.)

² The Dudh-Kharias dig the hole for the afterbirth with a hair-pin. (Roy, *The Kharias*, p. 205.) The Birhors believe that a deep hole for the afterbirth will mean a long interval before the birth of the next child, but if the stump of the cord is buried too deep, the baby's teeth will be slow in appearing. (Roy, *The Birhors*, p. 224.) The Hos do not bury the afterbirth immediately, but keep it in a new earthen pot for a couple of days. 'If then the child shows no signs of illness, the pot is buried deep in the courtyard of the house. (Majumdar, p. 73.)

³ When the stump of a Khond child sloughs off, the parents burn a spider to ashes, put them in a coconut shell, mix with castor tree oil and apply with a fowl's feather to the navel. (Thurston, iii, p. 394.)

We may note in conclusion that when a child is born with the cord round his shoulders, it is generally regarded as lucky. 'It didn't want to come into the world, but God tied it up and sent it forcibly, so God will have to see that it has no trouble.' Those who believe in re-incarnation say that it means he was a Brahmin in a previous birth, if the cord goes like a sacred thread from the right shoulder to the left side; or, if the cord is round his neck, that he was hanged for murder.¹

18. THE PUERPERIUM.

After delivery, as we have already described, the first task of the assistants is to divide the umbilical cord and dispose of the placenta. When this is done, and the umbilical stump dressed or bandaged, they turn their attention to the mother.

In some houses there is a store of human hair preserved for warming the mother after delivery. The assistants get a bit of broken gourd and put fire on it. One of them holds open the lips of the vulva and another puts the hair on the fire and holds it in front of the vulva to warm it.

They bathe the child first, then the mother, and after that clean and tidy the house. They must be careful not to tread in the blood of the child, for this causes the soles of the feet to crack. The water in which the child is bathed must not be trodden on for a period of three months, and care is taken to throw it away in a secluded place. If the child shows a tendency to yawn and stretch itself, they throw its bath-water on a dog hoping that the dog will carry away the bad habit.

After the mother has bathed, they cut off some of the rope from the bed she is lying on, and tie it round her waist to strengthen her and stop the flow of blood. To prevent the child getting pneumonia, they perform *dāba-chikai* with a red-hot sickle. Someone spits three times on it crying 'I am stopping the *dāba*' and touches the child lightly with it between the ribs.

Now the mother is to be fed. This is done ceremonially on two occasions, the first of which is called Bara Okad and the second Pat. The Bara Okad food is given on the first day, as soon after delivery as they can get it ready. It is a mixture of medicine, magic and nourishment, and varies considerably from place to place. The Baigas often give a mixture of wild beans, *bara osaha* and *chhindi ke gabuja* boiled together in water. The Pahari Dhanwars give the root of *musdar* boiled in water and *passia* (rice-water). The Gonds give a decoction of black pepper, cloves, bark of the *kassi* (*Bridelia retusa*, Spreng.) and

¹ The Lepchas believe that a strangulating cord is due to one of the parents having twisted a rope or string round their necks in the latter stages of pregnancy: it means nothing to the child. (Gorer, *op. cit.*, p. 287.)

kakai (*Flacourtia ramontchi*, L'Herit), cooked in water and mixed into a little rice boiled with urad pulse. Another recipe is *hirwa* water, turmeric, salt, chili, cloves cooked together, mixed then with oil and re-heated.

The Bara Osad, say the Gonds, should not be given in bed. 'We are not pigs that we should eat inside our sty.' The mother must come out and sit on a stone. Then her loins will be strong as a stone, and even if someone hits her with a stone she will escape injury.

The Pat food is given three or five days afterwards. The Baigas, however, who allow their women to go to work immediately, give it on the day of birth soon after the Bara Okad. The Pat is a feast of congratulation to the mother for having escaped the dangers of pregnancy and delivery. According to their means the people give chicken, rice and pulse, ghee, ginger, sweets, and any other luxuries available. The Baigas only give *kodon*, *khijri* made of *urad* pulse and *marria roti*. At the same time presents of a sari, bangles and a *pundara* for the hair are made to the mother.

After two or even three days, the child is given the breast for the first time. The *gunia*-magician comes to discover what ancestor has been reborn in the child. When he discovers this, the child is named. Its hair is cut, and carefully put into a ball of moist flour and thrown into a stream. After six months the child is ceremonially fed with a little *khijri*.

After childbirth the woman is regarded as 'unclean' for some time because—as the Baigas say—'blood and water flow from her like muddy water'. On the other hand, 'the blood of childbirth is not unclean like the blood of a woman in her period'. She is not a menace to society like a menstruating woman.

But she too must observe certain rules. She must not cook for a period that varies from one month to five. The Baigas say she should not cook for three months if the child is a girl, or five months if it is a boy. Other tribes, however, terminate the period of impurity much sooner.

The Agaria woman must not touch the heavy hammer or the anvil during this period. Some people object to a mother with a newly-born baby coming into their houses: they believe that she attracts hundreds of rats to the place. She must not eat any part of a sacrificed animal.

The Baigas and other wilder tribes do not resume sexual intercourse for a considerable time—three months for a girl, and five for a boy. The other tribes are less strict and often do not delay more than a month or two. Even among the Baigas, it is said, a man goes to his wife 'like a thief' after a month.

But the rules of the puerperium, even though often ignored in practice, ensure a certain degree of consideration for the

young mother and mean that she gets some respite from the heavy burden of toil that falls to a peasant's wife.

19. ABNORMAL BIRTHS.

The Rakshasa.

The tribesmen classify and name a number of abnormal and monstrous births, whose occurrence they generally regard with horror. One of the commonest of these is the Rakshasa child who is born with teeth. If this child is allowed to live it is believed that it will devour its mother. It is sometimes thought that it is the result of sexual congress of the human mother with the ghost of a man who has died unmarried and thus become a Raksa. Some Baigas told me that 'when a pregnant woman sleeps outside, a Raksa approaches her. Afterwards, he steps over her from left to right and the child that is born has a big head, a small mouth, long nails, teeth, very long arms and legs, with hair on head and body'. These, it may be noted, are more or less the physical characteristics of the ghost himself: he is hairy with a great head and face burning with the fire of lust.¹

Fortunately, such a child never lives more than a few days. If, however, it seems likely to survive, it is buried alive in an earthen pot for fear that it will eat or otherwise compass the death of the mother. This custom continues to the present day. Cases seldom come before the Courts because everybody, including probably the local police, are convinced that it is the only thing to be done. It is obviously impossible for me to give names and dates in support of my statements on this subject, but I do not think I would be exaggerating if I said that within the last ten years there had been half a dozen cases within my own immediate neighbourhood. I will give one vivid description.

'A Gond mother gave birth to something terrifying. It had its feet turned the wrong way, in its mouth were teeth, it was a Rakshasa. Suddenly it grew very big and tried to eat the mother. We hid her in a grain-bin and seized the child and took it out into the fields. Our *gunia*-magician turned it back into a baby and we put it in a new pot and buried it there in the field. As we did so, it cried out "In three years I'll eat my

¹ The Lepchas think a child born with teeth 'will be an incarnate devil'. When grown up, 'its thoughts and curses will be able to kill people'. (Gorer, p. 287.) The Pauris of Bonai State suffocate such a child and throw it into a stream. (Roy, *The Hill Bhuiyas*, p. 182.) The Bhils kill any queer-shaped baby such as one with an elongated skull which may be simply due to the pressure of a too narrow opening of the womb. (*Census, op. cit.*, p. 55.) The Kar Nicobarese used to kill all abnormalities. (*Ibid.*, p. 189.)

mother and in five years I'll eat my father." As we hastened away, we saw a great tree spring up above the grave.'

What was the reality behind this obviously terrifying experience? My informant quite clearly believed every word of it. I think probably that they were all drunk and in order to justify to themselves the destruction of the child they first imagined and then believed the supernatural setting of their story.

The Churelin Child.

If a pregnant woman sleeps out of doors in the hot weather, a Churelin may come and lie down beside her. She goes round her seven times from left to right with the result that a Churelin child is born. This is marked by a small head and mouth, a small nose, very thin scanty hair on the head and no waist. For some reason such a child is very lucky.

The Hati Child.

If the shadow of an elephant falls on a pregnant woman a child will be born with big head and ears, a small mouth, a long nose, a big belly and thick gross ankles above small feet. It is believed that if this child lives the mother will soon die, and it is disposed of in the same way as the Rakshasa.

The Bandra Child.

When a pregnant woman sleeps out of doors, the shadow of a monkey may fall on her, 'or perhaps the monkey has gone to her'. The result is a small head, a big mouth, flat nose, 'spine sticking out at the back', and thin ears. It is killed very simply by neglect.

The Dano Child.

The pregnant woman dreams of a Dano-ogre. Its shadow falls on her belly. Perhaps she has been foolish enough to sleep under a *behera* tree, the traditional home of these ogres. The child is marked by a big head, a long nose, small ears, teeth and a round belly. They regard it as the most terrifying of all; if it lives it will destroy the entire family. It does not live.

The Kappa Child.

A child who is born with a double row of teeth is equally unlucky. It is born because during the pregnancy of the mother a Raksa came to the house and let his semen drop upon her from his mouth. The people either destroy the child or—as I have heard in one instance—they perform the rite called Thua, throwing the front teeth up onto the roof and putting the back teeth into a rat's hole. By this means the danger is averted.

The Dhowa Child.

When the mother menstruates throughout her pregnancy, they expect the child to be white as a result of losing all its blood. Such a white child is also sometimes called a 'Saheb Child' and it is thought that the mother must have had congress with a European. They do not seem to take this very seriously, however, for they do not penalize the mother in any way. In the last ten years no such children have been born in our neighbourhood, so I cannot say from personal experience what the tribal reactions are.

The Nirpondia Child.

A child born without a rectal orifice is called Nirpondia. I have seen two or three cases, and the child has always died. It is said to be like a bat which is supposed to eat and excrete with its mouth.

The Sati Child.

In Korkuma village, a Kawar child was born with three feet, a vagina and a penis. During her pregnancy the mother suffered from an exaggerated distension of the abdomen. In a dream her great-great-grandfather said 'I am coming back again'. His wife had been a Sati and so in December 1939 this child—half man, half woman—was born.

Other Monstrosities.

In the Korba Zamindari, six or seven years ago, male twins were born, joined together at the shoulders. They lived for six months and then died.

A sort of lithopaedion was delivered by Gondia, the wife of Pandua Gond of Sarai Tola (Mandla). After a protracted pregnancy, she gave birth to what everybody declares was a stone child. The Suin had to extract it by hand. 'When she felt it she screamed and screamed. We threw it away in terror. The Hindus heard of it and declared that it was a god. They offered us five hundred rupees for it, but when we went to find it, it had disappeared.'

I have heard of two cases where a child has 'burst out' of the mother's womb—this may be a distorted account of a primitive Caesarian section. From Harrai Tola comes a story of a boy 'who was angry in the womb and burst his mother's belly'. It was removed through a slit in the mother's abdomen and is still alive, though the mother died. The villagers wanted to bury the child in a pot, but in the end, as there was nothing abnormal about the child's appearance, they decided not to.

In the Baiga Chak also, some twenty years ago, a child was born through 'bursting the mother's belly'. It had a big head,

teeth and hair on the body. It is said that the mother met a Raksa on the road and he spat at her. The spittle entered into her belly and frightened the child so much that he broke his way out. The real miracle, of course, is the fact that the villagers allowed him to survive.

20. LUCKY AND UNLUCKY CHILDREN.

A Lamu child is one born so soon after its predecessor that the mother has had no time for a single menstruation. They appear to be fairly common. They are regarded as rather dangerous and unlucky. One reason is that a Lamu child is usually the result of an intrigue with the husband's younger brother. 'When a girl conceives by her *dewar* (husband's younger brother) it is always a Lamu child. She never goes "out" if her *dewar* is having her. God is the enemy of this child, for it is the child of sin and he shoots at it with his arrow, the lightning. So when the mother is pregnant, everyone runs away from her during a thunderstorm, and when the child is born she herself leaves it when lightning flashes about the house.'

To avoid these dangerous and unpleasant consequences, the people perform various ceremonies of the Thua class. They take an empty pot and smash it. Someone says, 'What was that noise?' The reply is given: 'That was a Lamu child being killed.' This innocent deception saves the child from further danger. Or sometimes at birth, the people put the child in a basket and wave a blazing torch round it saying 'The Lamu is burnt; your cord is cut'. But it is useless to try to deceive the godlings by giving the child another name: that is always fatal. He is certain to be struck by lightning then. Thirty years ago in Pachdar a Lamu boy changed his name to Bora and he was struck by lightning and killed.

But when he has grown older he should wear a ring of virgin iron and in July and August he should put leaves of the date-palm in his leaf hat and fix an iron ring on the top. This forms a secure lightning conductor.

The Gonds and Korkus of Betul make what they call there a *thunka* to protect a Lamia child. On the Akkari festival they persuade a virgin girl to catch a white hen—if it is a girl Lamia, or if it is a boy, they send a virgin boy to catch a white cock. They take this to the cross-roads and let it go. This is done every year till the child reaches the age of puberty.

Another unlucky child is a boy born after three girls. He is known as Titru. In Patan Buddiya, our neighbour, had three daughters and then a little boy. They were very frightened for fear the parents and indeed the whole family would die. They put the child, the placenta and the cord under an inverted basket which they covered with grass pulled from the

eaves of their house, and set fire to it. The grandmother called out loudly, 'What are you doing?' and the parents answered, 'We are burning the Titru'. Then everybody there began to shout, 'The Titru is burnt, the house is filled'—in order to bring luck. But even after this, poor little Titru has always been weak and ailing, and the family has been sunk in poverty and misfortune.

Another Titru boy in Jhumar was protected by having a rice-pounder attached to a wooden churn passed to and fro over him seven times.

To neglect these precautions is dangerous. In Bhagni Bhawar, a Pardhan named Basor had a Titru child and did not think it necessary to do anything about it. Within a few months he himself was dead. He might at least, someone said to me, have put a stone beside the child as he was delivered and cried out 'Here is a Ganga Jamna twin'—for then the luck of the sexually disparate twin would have neutralized the bad luck of the Titru.

21. THE STILLBORN CHILD.

A child is properly said to be 'stillborn' when it is born dead after attaining complete or nearly complete physical development. Such foetal mortality, which is not (I think) very high among the tribesmen, is attributed by them to a variety of causes. The most conventional explanation is witchcraft. In Chikla Tola, a Baiga woman's child was born dead. This woman was the junior of two wives, the elder of whom, a jealous and frustrated nullipara, was a witch. This woman put magic in a dish of *khujri*, and when the mother ate it the child died in the womb. The Agarias of Pandaria told me of a child who was born with no blood in the body and no blood flowing from the placenta, whose death they attributed to witchcraft. Another Agaria of Bhoira village called Titru told us how five years ago his child was stillborn. His sister's mother-in-law hated the young mother and put magic in some *urad* pulse and gave it to her to eat. The child died and a magician had to be called to help in the expulsion of the foetus from the womb.

But witchcraft is not the only cause. A mysterious and terrifying possibility is that a pregnant woman may go to a dead man (not a *raksa*) in a dream. 'His seed rushes in and kills the child. No one can save it.' I was given the names of two Baiga women in Ajghar and Chuidadar and of a Gond woman in Kewar who had had this terrible experience.

Sometimes it is said that a stillbirth is 'for sin'; the parents have perhaps committed incest in fact or in dream, or 'they have cursed another's child'.

Sometimes a dangerous spirit called Marra Mua comes and lies on the belly of a pregnant woman. Or it may come in a dream and go to her and the child is killed by the shock of fear. Thirty years ago this happened in Silpiri; 'it pressed her down, the child was born dead.'

22. ABNORMAL PRESENTATIONS.

The tribesmen regard the vertex presentation as the only safe and normal mode of delivery. They never refer to a breech or foot presentation without saying in a tone of some surprise that the child is still alive—if indeed it is, for there is a high foetal mortality among such abnormal cases.

Let us consider first the causes of the abnormal presentation, and afterwards what the tribesmen think about it and the precautions they take to save the child and mother.

A foot presentation has all too often a discreditable origin. Thus the Baigas say 'such a child is the fruit of many men'. In Chindidih there was a Baiga widow who was well known to be a witch and therefore no one would marry her. But many men went secretly to her and at last she had a child who was born in this way. 'It is still living.'

The Bharias say—as do also Gonds and Pardhans who have considered the matter—that a foot presentation is due to the placenta being upside down at the time of birth. It will be remembered that in tribal opinion a child turns right over in the womb once every day. That is to say, it is due to an unfortunate timing of the moment of delivery.

But it may also be due to an abnormal erotic technique; if 'a woman rides on a man' at coitus 'the child will be born the wrong way up'.

Still more interesting, if a girl is pregnant through the mouth or ear, her child will be born feet first. We must not laugh at this; the tribesmen regard such a means of fertilization as possible and actual. Sometimes a woman will drink urine mixed with semen; sometimes a man may say that he will give ear-medicine and secretly put his semen into the ear. In Samarsidauli, for example, there was a virgin and unmarried girl, very young. A boy was after her. He put his semen in her drinking water. She conceived and gave birth to a child which died immediately after a foot presentation.

Some of the Baigas attribute an abnormal presentation to the activities of Bihi Mata, a spirit who lives with the child in the womb. 'Bihi Mata wants to get out, it climbs up towards the throat. The child stretches up its arm to catch it and it pushes it down so that it comes out feet first.' But this is not Bihi Mata's fault; it only happens when she has good reason to suppose that the child wants to seduce her—perhaps it was incestuous in a previous birth.

A breech presentation is said to be due to the fact that the mother failed to take proper precautions during an eclipse. A pregnant woman should put a little soot on her buttocks and should bathe in warm water at this time. In Pandripani, the wife of Suni Baiga was pregnant and failed to fulfil her obligations. The child was born with a breech presentation. It was a cripple. Within two days mother and child were dead. Such a presentation is specially dangerous. In Lapha I also heard of a Chokh Agaria girl who died with her child under these circumstances.

Certain precautions, of course, can be taken. When a child is born feet first and face downwards, they expect the mother to die, but they take some of her hair, a bit of the umbilical cord, and fire in a broken pot to a cross-road and leave it there. The mother herself turns the child over saying, '*Sida ladka hai, sida ladka hai*—the child is straight'. If the child does survive, the mother should never carry it across a river in the rains or there will be danger of them both being carried away by the flood.

A child born in this way is called by the Dhobas Kappa (if the face is downwards as well as the feet first). The Baigas call it Upcha or Upchi, and also Bhula or Bhuli (forgotten) for the mother must have had so many men that she has forgotten who the father was. Others call them Paune and Panaria. In Korba the Agarias used the word Pawara. Some Gonds say Peruk or Pairya. The most common name is probably Ulta, or Upside Down.¹

If the child survives it is usually regarded as lucky. It has the power of curing rheumatism; if it kicks a sufferer from this complaint in the waist, he will probably get relief. The Gonds and Kurkus of Betul think very highly of such children. 'If the child lives in the belly head up, it will be born feet first and be very lucky. It has the power of finding hidden treasure, and it can tell whether a sick man will die or recover.' Its power, however, can be broken by the application of the *bhilwan* marking nut or a hot sickle to its stomach, but no one would want to destroy so valuable a source of good fortune.

Sometimes, however, the Pairya is held to be unlucky. 'It comes kicking its parents, how can it be good?'

¹ The Madigas of Mysore believe 'with many other castes' that a foot presentation 'forebodes evil to the midwife, who is often believed quietly to strangle such a child'. (Thurston, iv, p. 149.) The Medas of S. India insist that after a foot presentation, the child's maternal uncle should not hear it cry till the Shanti ceremony has been concluded. (Thurston, v, p. 57.)

The Lepchas believe a breech presentation to be fatal to the child, probably also to the mother. 'It is due to one of the parents having tied up a packet at one end to carry food and then, instead of taking the food out of the mouth, to have taken it out of the tied end.' (Gorer, *op. cit.*, p. 287.)

23. THE CAUL.

When a child is born still enclosed in the foetal membranes it is said to have been born with a caul, and this circumstance is still regarded in many parts of Europe as extremely lucky.

In the Maikal Hills, however, there is less satisfaction with the event; except that 'it is good for the mother, for everything comes away at once', the caul is generally regarded not only as unlucky but as a punishment.

Genuine tribal opinion, for example untouched Baiga opinion, holds that when a pregnant woman goes to her father-in-law or to her husband's elder brother (from whom she is barred by the strictest rules of avoidance) in a dream, she is so filled with shame that she covers her child in a bag, and the child comes out into the world still hiding for shame within it.

Some Agarias told me that when a child is born in a caul (for which their expression was *jābad me bhara hai*) it meant that the cravings of the mother during her pregnancy had been denied.

The more sophisticated tribesmen believe that the caul is due to an act of meanness on the mother's part. She was approached by a sadhu or other mendicant and put a very small gift into his bag. The child born in this way, they think, will be very mean when it grows up.

The membranes are torn off the child's body and buried with the placenta and umbilical cord. The circumstance is a rare one, and there do not seem to be any special rites in connection with it.¹

24. MULTIPLE PREGNANCY.

Twins are rather uncommon in the Maikal Hills; during eight years it so happened that I never came across an actual case. But they do occur and are often discussed. The tribesmen distinguished between monozygotic and dizygotic twins by observing whether there are two placentas or only one. Twins born with one placenta are generally regarded as lucky, and it is noticed in later life how closely they resemble one another. Twins born with two placentas are of more doubtful standing; they are often regarded as the result of superfecundation, that is, it is believed that fertilization did not occur at one coitus and that perhaps two men or a man and an evil spirit were responsible for the biparous pregnancy.

Twins are invariably named according to the conventions of their Hindu neighbours. Two girls are called Chita (Sita) Kota, the name Kota being given to the elder. Two boys are Ram-Laksman. A boy and a girl are called Ganga-Jamna,

¹ Gorer records that he did not hear of any cases among the Lepchas. But 'if it did occur, it would be lucky'.

the male and female rivers that join and flow on inseparable towards the sea. A Ganga-Jamna pair, born inevitably with two placentas, is lucky; twins of different sex are thus always lucky.¹ A Ram-Laksman pair are lucky if there is only one placenta, unlucky if there are two, in which case it is expected that both mother and children will die. In the same way, a Chita-Kota pair with one placenta is lucky, with two ill-omened and perhaps disreputable.

To understand this we must consider what the tribesmen conceive to be the cause of such multiple pregnancies.

Twins born with a single placenta are regarded as the legitimate and lucky children of one man, the fruit of a single vigorous act of coitus after which the woman lay on her back so that the man's seed divided into two streams and thus produced two children. Others say that a pregnant woman must be careful not to lie on her back until the quickening is accomplished. If she does, the blood that is forming or setting divides and there are twins. If she continues sleeping on her back, the sexes will be different; if she turns on the left, there will be boys; if to the right, there will be girls.

Two placentas do not always mean that the woman has been unfaithful. Very often, of course, it does. If two men go to a woman on the day when she finishes her period, she may have twins. This happened to a Gond woman in Sanhrwachhapar. And the Pardhans say definitely that 'two flowers (placentas) mean two Rajas'.

But it may also come about through superfecundation by the woman's own husband. 'He goes to his wife at the end of her period. Then he goes to no one and she goes to no one for fifteen days, they are fresh and strong. Then he takes her and his seed shoots out like a bullet from a gun. It strikes the former seed resting in the womb and pushes it aside, so that now there are two seeds and two flowers and two babies.' Sometimes, the Gonds have told me, 'the woman has to sit for five days before the second child is brought out'. This sounds like a genuine superfecundation.

But generally two placentas point either to adultery or to congress with an evil spirit. 'When there are two flowers tied to two babies, the mother is bound to die, for one of the flowers is the work of a *bhut* or a *raksa*.' A curious variant of this belief was given us by a Dhoba. 'When a man is visited by a Churelin and goes to her and then after a little while goes to his wife, some of the Churelin's water remains on his penis, and goes into the wife's bag with his seed. From this two children are born—one will be a girl with one flower, the Churelin's child, the

¹ This is the more remarkable because the Hindus regard brother and sister twins as *pāp-pāpi* who have shared the same bed within their mother's womb.

other will be a boy, with another flower, the man's child. The girl always dies; but if she did live she would be very lucky.'

In Koelari a Gond was greatly troubled by a Churelin. She made him take her again and again, night after night, till he was almost wasted away. One night, he fell asleep exhausted after congress with her. His wife came to him and he went to her also and she became pregnant with twins.

Twins¹ are said to lie across one another in the womb. They are believed to run in the family. 'If the mother bears twins the daughter will have them also,' said a Baiga magician. Triplets are regarded with distaste. 'She is a woman, but she litters like a bitch.' Some Baigas greeted a picture of quins with loud and prolonged laughter. But a Dhimrin, fisher-woman, of Ganaghat had quins some years ago—it is said that one was fully developed, the others were very small, and all died.

They dispose of the afterbirth of twins in the following manner. If there is one placenta, they cut off one umbilical cord close against the placenta, leaving a long strip attached to the child. They cut the other cord in the ordinary way, cover it with ashes and bury it beneath the placenta. They leave the child with the cord still attached for a day and then cut it. They don't bury this, but put it straight on the fire. This will help to prevent twins in future.

If there are two placentas, they divide the cord in the ordinary way and dig the pit. They put one placenta into the pit first, drop pulse and rice and a copper coin onto it, and put the second placenta on top of that. This is said to remove danger from the children.

Even lucky twins are inconvenient for poor families, for it is difficult to nurse and later to feed them. A Pardhan woman told me how hard it had been to feed them—'they both did nothing but kick and struggle.' 'But,' she added, 'I felt very proud, for all the world came to see my two babies.' As they grow up special precautions have to be taken for fear one twin will entirely dominate the other. This also applies when two

¹ The Memis consider twins 'very lucky'. No work is done on the day they are born. They are always helped first when food is distributed. (Hutton, *The Angami Nagas*, p. 341.) Among the Angamis, twins are uncommon, but are not disliked. 'If both are boys it is a matter for congratulation; their mother is under an obligation to give them flowers of the same variety and cloths of exactly the same pattern.' (Ibid., p. 217.) Triplets are very rare indeed. Hutton knew of one case, but all died.

Among the Lepchas, twins are very rare. If they are of the same sex, they are lucky, if disparate, they are lucky provided the girl was born first. Among the Veddas twins were unheard of. (Seligman, p. 101.) The Kar Nicobarese used to kill one of a pair of twins; this is said not to be done now, but twins are regarded with horror. (*Census, op. cit.*, p. 189.)

The same custom is observed by the Kharias, though Roy says it is falling into disuse. (Roy, *The Kharias*, p. 406.)

children have been born in the same village on the same day. The first-born is supposed to be much stronger than the other. If there is a girl and a boy, the girl grows much more quickly, for she takes the boy's milk. They put assafoedita and *bach* on the boy's hands and neck to stop his power of growth going to the girl. As much as possible, they are kept apart, for Ganga troubles Jamna very much and keeps him thin. There is much more sympathy, however, between two boys. A Ram-Laksman pair in Karanjia always got ill together. They both got ear-ache and became deaf on the same day. Their mother is said to have had three lots of twins.

When two children are born on the same day in the same village they are regarded almost as twins. Their mothers must not see one another for a fortnight. They are then blindfold and brought to meet each other, the bandages being removed at the same moment. If this precaution was not taken, the mother who saw the other first would draw all her milk into her own breasts.

I have recorded a Dadaria song about twins—

There are two wires on a *chikara* (fiddle)

But there is one music from the two

There are two children in the girl's lap

There is a goose, there is a dove.

She loves them both the same.

25. CONCLUSION.

In this article I have dealt with the ultimate issues of birth and life in the way that the tribesmen themselves treat such things, frankly and without embarrassment. To these people the facts of life', the mechanisms alike of conception or excretion, are natural and therefore good; sex is a clean and excellent thing, there is nothing obscene or furtive about it, rather it is the expression and the means of love, the most beautiful and holy experience in man's life. The aboriginals would be astonished at any suggestion that the frank and open discussion of such important matters was improper; they would agree with Westermarck that 'the concealment of truth is the only indecorum known to science; and to keep anything secret within its cold and passionless expanses would be as prudish as to throw a cloth round a naked statue'.

A study of the tribesmen's attitude to the mystery of birth reveals first the domination of the ideas of sympathetic magic over their lives, then the fears and dangers that seem to threaten them at every turn, and finally the enormous importance that family life has for them. So great a number of ideas and regulations does not gather round something that does not move the deepest interest of a people. For a Gond or Baiga, as indeed

for people throughout the world, there is nothing greater than the love between man and woman, nothing more wonderful than the birth of a child, nothing more beautiful than the transformation of a girl into a mother.

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The king Candra of the Meharauli Iron Pillar Inscription.

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We learn from the Inscription on the Iron Pillar at Meharauli, near Kutb Minar, Delhi, that it was set up, as the standard of Viṣṇu, on the hill called Viṣṇupada, by a king having the name of Candra (*Candrāhvena*).¹ The most important problem raised by this record is the identity of this king Candra, and various theories have been advanced about it. He has been identified with kings Candragupta I² and Candragupta II³ of the Imperial Gupta dynasty and also with king Candrarvarman⁴ of the Susunia Rock Inscription. None of these has, however, met with general acceptance.⁵

The record tells us that king Candra fought battles in Vaṅga and conquered the Vāhlikas after having crossed in warfare the seven faces (*mukhāni*) of the river Sindhu.⁶ These are the

¹ Fleet—*Gupta Inscriptions*, No. 32, pp. 139ff.

² This view, originally propounded by Dr. R. G. Basak (*Ind. Ant.*, 1919, pp. 98–101; *History of North-Eastern India*, pp. 13ff), has been endorsed by Prof. S. K. Aiyangar (*Journ. Ind. Hist.*, Vol. VI, Supplement).

³ Originally held by V. A. Smith (*J.R.A.S.*, 1897, pp. 1ff. *Early Hist. of India*—1st and 2nd Editions) but later given up (*ibid.*, 3rd Ed., p. 290, f.n.1). Reiterated by G. P. Mehta, K. P. Jayaswal (*J.B.O.R.S.*, Vol. XVIII, pp. 31–33) and Dr. D. C. Sircar (*J.R.A.S.B.L.*, Vol. V, pp. 413–15).

⁴ *Ep. Ind.*, Vol. XII, p. 318.

⁵ The defects of the different views have been pointed out by Dr. H. C. Seth who has proposed to identify Candra with the Maurya king Candragupta (*Journ. Ind. Hist.*, Vol. XVI, pp. 117ff). This view has not been seriously taken by any scholar and I have, therefore, left it out of discussion. Dr. H. C. Raychaudhuri has suggested that king Candrarāma, mentioned in the Purāṇas, 'may have been the Candra of the Meharauli Inscription' (*Pol. Hist. Anc. Ind.*, 4th Ed., p. 449, f.n. 1) but we do not know anything of this king.

⁶ I have assumed in this paper that Vāhlika denotes Bactria, as was generally agreed upon until suggestions were made to locate it (and also the Viṣṇupada hill) in the region, on the borders of Kashmir, through which flows the northernmost part of the Beas (*Ind. Cult.*, Vol. I, pp. 515–519; III, 511–13). This identification rests mainly upon a passage in Rāmāyaṇa which, however, also mentions that the country was reached after crossing the Ikshumatī river. If this means the Oxus river the country is to be located in Bactria. The Viṣṇupada hill has also been located near Hardwar (*Ann. Bh. Or. Res. Ins.*, Vol. VIII, pp. 172ff) and identified with the Siwalik range (*J.B.O.R.S.*, Vol. XX, pp. 97–100). It is not necessary, for our present purpose, to discuss the identification either of Viṣṇupada hill or of the Vāhlika country, as the arguments advanced for the identification of king Candra would apply equally whether the Vāhlika country is in Kashmir or in Bactria. It must be pointed out, however, that Viṣṇupada hill is not necessarily to be located in the

only positive facts known about him, and are at present the only clues for his proper identification. Now, of the three kings with whom he has been identified, Candravarman ruled in Rādhā, which is very near Vaṅga, and the kingdom of Candragupta II almost certainly included Vaṅga. Although, therefore, we have no actual evidence of any of them having fought a battle in Vaṅga, it is at least probable enough; but the same cannot be said of Candragupta I. As regards Vāhlika or Bactria, the known facts about the gradual expansion of the Gupta Empire make it highly improbable that Candragupta II over extended his conquests so far, and almost impossible that Candragupta I did so. As regards Candravarman, there is nothing to show that his kingdom extended beyond Western Bengal, and even assuming that he belonged to the family which ruled over Malwa, and had its capital at Puṣkaraṇa near Ajmere, as MM. H. P. Sastri held,¹ there is nothing to support the view that he carried his arms to Vāhlika. None of the three proposed identifications is, therefore, acceptable as they fail to satisfy the most important test, viz. the conquest of Vāhlika.

The only ruling family in India whose kingdom is known to have included Vāhlika or Bactria, is the Kuṣāna. The reason why no one has proposed to identify king Candra with a member of this family is that none of them was known so far to have borne the name or title Candra. But in a recent article² Mr. H. W. Bailey has given a short extract from a Khotanese manuscript which definitely proves, what was already suspected by S. Lèvi and F. W. Thomas, that the famous Kuṣān Emperor Kaniska had the epithet Candra. This manuscript clearly says: 'in the kingdom of Bāhlaka, there was a king Candra-Kaniska by name'; and again: 'at that time in the kingdom of Bāhlaka, in Tokharistan, there arose in the family

Vāhlika country. Mr. Jayaswal, e.g. locates Viṣṇupada hill near Hardwar and identifies the Vāhlikas with the Bactrians (*J.B.O.R.S.*, Vol. XVIII, pp. 32-33). The expression *Sindhor sapta mukhāni*, used in the Meharauli Ins., can only mean the seven faces or feeders of the Indus (and not the mouths as we understand it in English) and most probably denotes, as pointed out by Jayaswal, the five rivers of the Punjab, with the Kabul and the Kunar rivers meeting the Indus (*J.B.O.R.S.*, Vol. XVIII, p. 32). In any case the significance of the statement that Candra crossed in warfare the seven faces of the river Sindhu must not be overlooked. It proves that, irrespective of the question where the Vāhlikas are located, king Candra's dominions included territories outside India proper, beyond the Indus river.

If we place the Vāhlikas in the Punjab or Kashmir, the king Candra, who had to cross the seven faces of the river Sindhu, in order to conquer them, must have been originally the ruler of a region which lay outside India proper, and as such his identification with Candragupta I, Candragupta II and Candravarman immediately falls to the ground and that with Kaniska, advocated in this paper, becomes more probable than ever.

¹ *Ep. Ind.*, Vol. XII, pp. 317-18.

² *J.R.A.S.*, 1942, pp. 14ff.

of Imperial rulers, a brave, meritorious, intelligent king of Jambudvīpa, by name Candra-Kaniṣka'.¹ The details given about this king leave no doubt of his identity with the famous Kuṣān Emperor Kaniṣka.

Now, if we bear in mind the extent of the military conquests of king Candra of the Meharauli Inscription from Vāhlika to Vaṅga, we have to admit that his identification with Candra-Kaniṣka stands on far better grounds than those that may be urged in favour of any of the three kings named above, or for the matter of that, of any other known Indian ruler bearing the name Candra. For he certainly ruled over Bactria which none else did. As regards Vaṅga, we have, it is true, no definite information that Kaniṣka carried his victorious arms so far, but the known facts make it very likely. We know that in the 3rd year of his reign Benares was ruled over by his satraps. 'Tradition affirms that he attacked the king residing at Pāṭali-putra and carried off from that city a Buddhist saint named Aśvaghosha'. There are good reasons for the belief that Kaniṣka and Aśvaghosha were contemporaries, and this lends some support to the above tradition.² Further, Kuṣān coins have been found both in Bengal and Orissa, and gold coins of Kaniṣka have been unearthed at Tamluk and Mahāsthāngarh, the sites of ancient Tāmralipti and Puṇḍravardhana.³ Although, therefore, we may not definitely assert that the Kuṣāns held sway in Bengal, a military campaign of Kaniṣka in Vaṅga is not certainly very unlikely. In any case it is not, perhaps, more improbable than that of the other three kings, who have been identified with Candra.

Having thus demonstrated that according to the data furnished by the Meharauli Pillar Inscription, the identification of king Candra, mentioned in that record, with Kaniṣka, is more likely than any other so far proposed, we may proceed to discuss whether there can be any legitimate objection to this identification on other grounds.

The first difficulty is palaeographical. The alphabet of the Meharauli record is usually referred to the early Gupta period and this militates against the identification of king Candra with Kaniṣka. This difficulty is, however, more apparent than real. For in the first place, we do not know for certain whether the record is coeval with the king it mentions or a posthumous one of a memorial character.⁴ In the latter case

¹ *J.R.A.S.*, 1942, p. 19.

² V. A. Smith—*Early Hist. Ind.*, 3rd Ed., p. 260. *J.R.A.S.*, 1913, p. 646. R. D. Banerji—*Imperial Guptas*, p. 2.

³ Rapson—*Indian Coins*, pp. 13-14; *Proc. A.S.B.*, 1882, p. 113; *Ann. Pep. Arch. Surv. India*, 1930-34, Part II, p. 256.

⁴ Fleet regarded the record as posthumous (*Gupta Inscriptions*, p. 140). Dr. D. R. Bhandarkar, however, holds that king Candra was alive when the eulogy was engraved (*Ind. Cult.*, Vol. III, p. 511) and the same view is held by Dasaratha Sarma (*Ind. Cult.*, Vol. V, pp. 206-8). Fleet's

the alphabet of the record may be of a later type than that of the king it mentions. The somewhat bald reference to a king named Candra without additional epithet, may no doubt be due to the exigencies of metre, but is fully in keeping with a posthumous memorial, recorded long after the king has ceased to reign. Secondly, it has been already suggested by some scholars that the record is somewhat earlier than the Guptas. Thus, referring to the Susunia Inscription, which he considers to be 'written in early Gupta characters', Mr. Dikshit remarks that 'the characters cannot be considered to be so early as the Meharauli Pillar Inscription of Candra'.¹ Thirdly, recent discoveries have made us familiar with a new type of Kuṣāṇ alphabet which shows a close affinity with the eastern variety of Gupta alphabet such e.g. as is used in Allahabad Pillar Inscription, the striking resemblance of which with the Meharauli record was noticed by Fleet.² Indeed, it is now recognised by many scholars that the so-called eastern variety of the Gupta alphabet really originated during the Kuṣāṇ period, and that no hard and fast distinction exists between the Kuṣāṇ and the Gupta script.³ If any one compares the Mathura Pedestal Inscription of Kanīṣka, dated year 14,⁴ with Meharauli record, it would be difficult to reject off-hand the ascription of the latter to the age of Kanīṣka or shortly after it. Such difference, as may be noted, may be due to local characteristics. We do not know for certain whether the Iron Pillar was in Delhi when the record was engraved. It has been argued, with some degree of plausibility, that the hill Viṣṇupada, where the pillar was originally set up, is to be looked for in the border of Kashmir or Hardwar.⁵ Making allowances of this distance from the findspots of the known Kuṣāṇ inscriptions, the monumental character of the alphabet, and the 'stiffness resulting from engraving in so hard a substance as the iron of this column,'⁶ the alphabet of the Meharauli Pillar Inscription cannot be definitely regarded as posterior to the Kuṣāṇ period. It is needless for the present purpose to raise the vexed problem of Kanīṣka's date, but it is well to remember that the question is not finally decided as yet, and he may be much closer in point of time to the Imperial Guptas than is generally supposed.

The language of the inscription, strictly interpreted, would imply that Kanīṣka started from a base in India, and proceeding

view is, however, endorsed by Jayaswal (*J.B.O.R.S.*, Vol. XVIII, p. 31). Dr. D. C. Sircar refutes the views of Dr. Bhandarkar and holds that the record is posthumous (*Select Inscriptions*, p. 277, f.n. 1).

¹ *Ann. Rep. Arch. Surv.*, 1927-28, p. 188.

² Fleet—*Gupta Inscriptions*, p. 140.

³ For detailed discussion on this question, cf. *Ind. Cult.*, Vol. IV, pp. 335ff.

⁴ *Ep. Ind.*, Vol. XIX, pp. 96-97.

⁵ See f.n. 6, p. 179 above.

⁶ Fleet—*Gupta Inscriptions*, p. 140.

west crossed the seven mouths of the Indus and conquered Vāhlika. This does not exactly fit in with our present conception about the career of Kaniska, who is assumed to have inherited the vast empire of Wema Kadphises on both sides of the Hindu Kush. We must remember, however, that we really know so little of the relationship between Kaniska and Wema Kadphises, and the means by which he secured the empire of the latter, that Dr. Fleet and other scholars contended for a long time that he was not connected with the latter at all, and further that his dominions were confined to India.¹ In view of this uncertainty we cannot dismiss the identification of Candra with Kaniska on the ground that the former had to conquer Vāhlika by sending a military expedition from India. This difficulty, of course, does not arise if we locate the Vāhlikas in the Punjab or Kashmir.²

The fact that Kaniska was a renowned Buddhist is not incompatible with his rôle as a Vaiṣṇava devotee who erected a flagstaff in honour of god Viṣṇu. For, apart from the general spirit of toleration and eclecticism common in those days, the coins of Kaniska bear the figures of so many gods and goddesses both Indian and non-Indian, that his reverence for, and even devotion to, god Viṣṇu cannot be regarded as unusual. As Dr. Thomas³ remarked long ago 'Kaniska patronised a number of the religions flourishing within and without his empire'.

On the whole there cannot be any valid objection to the identification of king Candra of the Meharauli Pillar Inscription with Kaniska, the great Kuṣān emperor who had the Indian epithet or name Candra. This identification does not, of course, rest on evidence which may be regarded as conclusive. But this hypothesis seems to be better than the others which till now hold the ground. The crucial point in the identification of king Candra is the rather unusual fact of his rule over Vāhlika. Kaniska is the only Indian ruler, so far known, who bore the name Candra and ruled over Vāhlika, and while the probability of his carrying on a military campaign in Vaṅga is almost as great as that of either Candragupta I, Candragupta II, or Candravarman, the idea that any of these extended his rule over Vāhlika beyond the Indus is highly improbable, if not altogether impossible. Hence the proposed identification must be regarded as better than any other, yet proposed, and this is all that is claimed in the present discourse.

¹ *J.R.A.S.*, 1913, pp. 927ff.

² See f.n. 6, p. 179 above.

³ *J.R.A.S.*, 1913, p. 646.

REVIEWS OF BOOKS.

AGARIA. By VERRIER ELWIN, with a Foreword by SARAT CHANDRA ROY. Published by the Oxford University Press (1942). Pp. 292 with 36 plates, 44 figures and 8 maps. Price Rs.12-8-0 only.

The Foreword to this new volume by Verrier Elwin was probably the last thing written by the eminent anthropologist S. C. Roy of Ranchi who signed his note on the 10th of November, 1940, dying soon afterwards, 'depriving science of a patient, humble, exact, far-seeing scholar, and the aborigines of an ardent and sincere champion' as Mr. Elwin writes in his Preface dated 11th May, 1942. Mr. Elwin's name is now a household word among the aborigines of the Central Provinces, as the late Mr. Roy aptly observed; and he came to be famous by publishing his book on *The Baiga*, their systems of magic, schemes of primitive jurisprudence, their attitude to sex and on the policy for their future. The volume under review on the Agaria may be regarded as a supplement to that on *The Baiga*.

The Agaria are the blacksmiths and iron-smelters of the Central Provinces, living in the Maikal hills and in the zamindaris of Bilaspur. They still retain a highly developed totemistic custom and a striking mythology controlling the material culture of the tribe. They are the real precursors of iron industry in India and so very naturally the family of Tata gave financial support to the publication of the book. The author gives us a model study on the actual life of the Agaria and at the same time furnishes us with all useful information relating to the associated discovery and utilization of iron in ancient India, with the *Asura* culture. With accurate observation he combines a revealing sympathy all his own, and we conclude this brief review by quoting a significant remark:

'You cannot observe mankind from the *howdah* of an elephant. There is no substitute for field work. There is no substitute for life in the village, among the people, staying in village house and enduring the physical distress as well as the possible misunderstandings that may arise. Happily the father of Indian ethnography, Mr. Sarat Chandra Roy, has set the most shining example in this regard.' So Mr. Elwin is not only a consummate scholar but a sturdy champion of the unfortunate, neglected and oppressed aborigines. We recommend his valuable books to all serious students of Indian ethnology.

KALIDAS NAG.

ART AND ARCHAEOLOGY ABROAD (University of Calcutta).
By DR. KALIDAS NAG. 8 vo., pp. 125.

Dr. Kalidas Nag is a brilliant and enthusiastic archaeologist who has had unique opportunities to study ancient culture in many countries. This little book, which is written in his usual attractive style, contains an extremely interesting survey of the facilities afforded by educational institutions and learned societies outside India in connection with the study of art and archaeology.

Dr. Nag describes this work as 'A report intended primarily for Indian Students desiring to specialise in those subjects in the research centres of Europe and America'. He has not only achieved his purpose but has incidentally provided his readers with considerable food for thought. So much has been done in foreign countries to encourage the study of art and archaeology. Should not India provide similar facilities for those who wish to study the monuments of her ancient and fascinating civilisation? Dr. Nag is deeply conscious of what should be done in this direction and he asks the very pertinent question.—'When will the museums and universities of India awaken to the urgent need of co-operating along similar lines in the grand work of reconstructing the history of the Orient?' Further, he points out how, apart from the official organisations of the Archaeological Survey of India, most of the museums and research institutions of this country are 'in a state of suspended animation, if not of positive stagnation'. He rightly advocates 'a more systematic and progressive policy to ensure the conservation of our national patrimonies and the intensive study of our prehistoric and historic remains'.

Even in the matter of literature for the intellectual tourist India lags far behind other countries. Dr. Nag would render a great service to cultured travellers in India from all parts of the world if he could be persuaded to edit and publish a series of books containing for the provinces of India the same sort of historical and archaeological information that is provided in the 'Highways and Byeways' series for the counties of England.

N. G. A. EDGLEY.

SANSKRIT POETESSES, PART A, WITH A SUPPLEMENT ON PRAKRIT POETESSES. Edited with critical notes, etc., by DR. JATINDRA BIMAL CHAUDHURI, Ph.D. (Lond.). English Introduction and Translation by RAMA CHAUDHURI, M.A., D.Phil. (Oxon). Foreword by DR. L. D. BARNETT, C.B., M.A., D.Litt., F.B.A.

The work under review is to be looked upon as an anthology of the poems written by the poetesses of India in the past. The verses were scattered in the various anthologies

and independent works which quoted them. A collection of these poems in a neat volume was a desideratum. This is the first feature of importance and interest of the book. The second remarkable trait is that they have been critically edited with indication of variation of readings. The third feature is a faithful English rendering which reads like an original composition. We must be grateful to Dr. Rama Chaudhuri for the superb English version that she has given of the original poetry of the poetesses. A brilliant scholar of the Calcutta University with a unique distinguished academic record and a Doctor of Oxford that she is, we expected nothing less from her. But apart from scholarship and mastery of the English idiom, her English prose has all the charms of poetry—a remarkable achievement which requires something more than academic equipment. The appendices and the bibliography really add to the value of the book. The introduction is exhaustive, noted alike for its critical observations, sage deductions and sympathetic evaluation of the poetry embodied in the text from the standpoint of literary criticism and socio-ethical appraisal. The language of the introduction is charming, lucid, direct, and the marshalling of historical and literary data in it is worthy of admiration. The work is the joint product of a talented couple and constitutes independent proof of the value of co-operation in the intellectual field. Dr. Chaudhuri is a distinguished Indologist and he has established a standard to be followed with profit in the art of editing classics. That the present book is a second edition shows that it has earned popularity with modern readers, which it richly deserves. It deserves to be read not only by a student of Sanskrit but even by social reformers and philogynists. That the whole contents of the book are given in elegant English rendering and the English introduction discusses the historical background with legitimate deductions from the data available places the work within the reach of an average educated man. This ensures its wide popularity. We appeal to one and all, who have any interest in India's culture, to make a perusal of the book and I can assure the reader that he will come out a better man, with his stock of ideas enriched, his misconceptions corrected, and appreciation of India's cultural heritage and historical past broadbased upon an authentic foundation.

SATKARI MOOKERJEE

INDIAN ARCHITECTURE—BUDDHIST AND HINDU PERIODS. By PERCY BROWN, M.B.E., A.R.C.A., F.R.A.S.B., Secretary and Curator, Victoria Memorial Hall, Calcutta. Published by D. B. Taraporevala Sons & Co., Bombay. Pp. 210+118 plates. Price Rs.19 only.

Fergusson's History of Architecture was published in 1893 and just after half a century Mr. Percy Brown presented to the

public his survey of Indian Architecture—ancient and mediaeval, in two separate volumes. The first volume, under review, covers the Buddhist and Hindu periods; but in the introductory chapter and in some other sections of the book relating specially to wooden origins (Ch. II), the author has given the background of the Pre-Vedic, the Vedic and the Pre-Buddhistic experiments in the constructional art of India. His reconstructed plans and sketches are as suggestive as they are revealing in significant details fixed permanently in stone technique from the Asokan epoch. Then, through the indigenous schools of the Hinayāna period, he takes us to the quasi-foreign Gāndhāra schools of Mahāyāna Buddhism. He offers many valuable hints regarding the much neglected buildings in brick (Ch. IX), leading gradually to the Gupta and Chālukyan temples. South India naturally claimed a large portion of the book, embracing Pallava and Chola, Pandya and Vijayanagara monuments. The Northern or Indo-Aryan style is covered by six big and well-documented chapters. The author is an ardent admirer of Kashmir and so he has added a special chapter on the Buddhist and Brahmanical remains of Kashmir (200–1300 A.D.) and, inasmuch as he served Bengal for a long period, he closed his book with the chapter (XXXII) on the Brahmanical Buildings of Bengal (8–17 cent.).

Mr. Percy Brown expresses his gratitude to the Hon'ble Mr. Justice Edgley for correcting the proofs and also for enriching the book with his carefully considered deductions relating to the chronology of the rock architecture printed in an Appendix. Justice Edgley's revised chronology of the caves of Ajanta and Ellora has thrown a new light on the political and artistic history of the Southern and the Western India. The glossary of technical terms and the Index, together with several sketch-maps and judiciously selected illustrations in 118 plates, make the book eminently helpful to general readers no less than to professional architects. Considering the heavy cost of production, in these days, the publisher and the author deserve our thanks for the moderate costing of the book. The typography is excellent, although, we feel that diacritical marks could have been introduced to improve the letter-press. Taken as a whole, Mr. Percy Brown's book will continue, for years to come, to guide the steps of many visitors to and students of the architectural glories of India. He has infused a new spirit of enthusiasm into his study and, although one might differ from him in some details, one cannot help admiring his sincere devotion to the cause of Indian art.

KALIDAS NAG.

BOOK NOTICES

GILGIT MANUSCRIPTS, VOLS. I, II & III (PART 2) SRINAGAR, KASHMIR; 1939, 1941, 1942.

In 1931 several MSS. were unearthed at Gilgit in Kashmir. The MSS. are written in upright Gupta characters of the fifth or sixth century A.D. The publication of these MSS. has been taken up by His Highness the Maharaja of Jammu and Kashmir and the work of editing has been entrusted to Dr. Nalinaksha Dutt.

The first volume contains the following texts: *Bhaiṣajyagurusūtra*, *Ekādaśamukha*, *Hayagrīvavidyā*, *Śurvatasthā-gatādhiṣṭhāna-sūtra*, *Śrīmahādevīvyākaraṇa* and *Ajitasena-vyākaraṇa*. In the introduction, the editor has dealt with the history of Buddhism in Kashmir and has given a summary of the contents of each of the texts along with a discussion of the time of composition and importance of the texts.

The second volume contains the first fourteen chapters of one of the nine principal texts of the Mahāyānists, viz. the *Samādhirāja-sūtra* the principal thesis of which is the establishment of *saṃatā* (sameness) of all *dharma*s. In the introduction the editor has dealt with the characteristics of the language and the philosophy of the text and has also given a synopsis of each of the fourteen chapters.

The third volume contains four chapters of the valuable work, viz. the original Vinaya text of the Mūlasarvāstivādins. This is an undreamt of find and throws very interesting light on the growth of the Buddhist Vinaya literature. In the introduction, the editor has given an account of the whole MS. found at Gilgit and the correspondence of the present text with its Pali version. There is also a synopsis of each of the four chapters. The whole work will be complete in four or five volumes.

THE HISTORY OF BENGAL, VOL. I.—HINDU PERIOD. Edited by DR. R. C. MAJUMDAR. Published by the University of Dacca. Pp. 729+xxxviii, with 81 plates.

The idea of writing a comprehensive history of Bengal on modern scientific lines may be traced as early as 1912. But it did not take any practical shape until the University of Dacca took it up in 1935. The University planned a history

in three volumes: the first, dealing with the Hindu period, to be edited by Dr. R. C. Majumdar, and the two other volumes, dealing with the Muslim period, to be edited by Sir Jadunath Sarkar. The volume before us is the first of the three volumes which has just been published. It covers the period up to 1200 A.D. and deals with the history of Bengal in all its aspects—political, social, literary, religious, art and economic. As the editor has very rightly remarked, 'These topics have been so far studied almost exclusively with reference to ancient India as a whole, but a regional study confined within the limits of Bengal has not yet been seriously taken up'. The different chapters of the present volume written by eminent scholars present for the first time a detailed study of these different topics and we welcome it as the first comprehensive history of Bengal in the proper sense of the term. A chapter on the activities of the Bengalis outside Bengal, both in and outside India, is not the least fascinating part of the book. Each subject has been dealt with a fulness of detail, with copious references, in a truly critical and detached spirit and we have no doubt that it will remain the standard work on the history of Bengal for many years to come. Reserving a proper review of the work for a future issue of this Journal, we conclude this short notice by congratulating the editor and the University of Dacca on the sumptuous volume that their efforts have produced. The book can be had of General Printers and Publishers, 119 Dharamtalla Street, Calcutta.

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Psychological Imagery in Kālidāsa.

By C. W. GURNER.

The prominence given by the Sanskrit poets in imagery and simile¹ to parallels between psychological experience and the physical world is characteristic of two trends in Indian thought and literature. In the first place, it is a manifestation of the intense introspection which underlies the philosophy of the Upanishads. In the second place, it implies the comprehensive conception of Reality as a quality attaching alike and in equal measure, whatever its ultimate value, to the concrete and to the abstract in human experience. Ultimately, no doubt, to the Indian thinker, neither category is 'real'; neither the physical world we touch and see and move through, nor our consciousness alike of this environment and of the reactions of our individual personality to its existence. Yet on the level of appearances both possess equal value: the psychological state is as real as the physical factors which determine its reactions: either may be applied indifferently, with equal truth and force to the illustration or imaginative interpretation of the other.

This can hardly be said to be the case in Western literature, from the classics to modern times, though within the last few years there has been a tendency to draw on Freudian psychology for the purposes of poetry as well as of art. But generally speaking, it is true to say firstly, that poetic imagery in Western literature makes sparing use of parallelisms between the psychological and the physical world, and secondly, that in so far as Western poetry has recourse to such imagery it is predominantly for the purpose of illustrating the psychological from the physical world, the intangible from the concrete. Instances to the contrary will occur especially to readers familiar with Milton and Shelley but, (to take one specimen only which will focus the subject under discussion), when one comes across a simile such as Leigh Hunt's for the river Nile—

'It flows through old hushed Egypt and its sands

Like some grave mighty thought threading a dream'

the effect is definitely of something rare and unexpected.

¹ In this article which is concerned only with the literary or cultural value of illustration of the physical world from the psychological, and parallelisms drawn between the two, no attempt is made to analyse the types of this imagery in accordance with the 'Alaṅkāras' of Sanskrit poetics.

Not so in Sanskrit literature, where the poet may dip his pen indifferently in either inkpot. The world of consciousness is no less familiar a resource for investing physical states and processes with imaginative beauty and emotional value than is the physical world as a source of imagery for psychological experience. Virgil creates a simile for mental indecision from the fluctuation of water in a bowl, which stands out so conspicuously that it has become a schoolboy's tag. To Kālidāsa the sense of liquidity in consciousness and water is an interchangeable commonplace usually associated with the idea of clearness (*Prasāda*) or the reverse.

The immediate object of this paper is the study of Kālidāsa's use of this imagery from consciousness whether for poetic illustration of physical states and activities, or for illustrating one phase of conscious experience by reference to another. The common factor lies in drawing from the wide range of psychological experience the material to serve for the point of comparison in the simile which gives amplitude and poetical value to the idea expressed. At the same time the extent of the parallelism between the two worlds in the poet's mind is suggested by less exhaustive mention of similes in the opposite direction from the physical to the psychological.

It must be prefaced however that, like most other features of Kāvya poetry, the simile from correspondence between the worlds of consciousness and external realities has a long history behind it, and serves already in the early epics to mark the cleavage of tone between the literature of the East and of the West. The poetic value of imagery is a fully developed factor both in Homer and in the Rāmāyaṇa and Mahābhārata. But chariot horses out of hand on the plains of Troy would hardly have suggested to Homer,¹ as a similar spectacle does to Vālmiki, the loss of control by an individual over his five senses (Rām. VII. 7/30). (One must refrain here from following up the interesting coincidence that this particular commonplace of Sanskrit imagery does make its appearance in Western literature in the philosophical writings of Plato, but essentially for its philosophical rather than poetical value.) Similes from Avarice to the detention of Sītā by Rāma (Rām. VI. 34/23), from the departure of soul from body to the dispersal of the princes (Rām. VII. 40/30), from recovery from delusion to the restoration of Hanumān to his natural shape (Rām. V. 1/197), illustrate

¹ At the discussion ensuing on the reading of this paper Dr. E. R. Dodds, Regius Professor of Greek at Oxford (whose presence at the 160th Anniversary of the Society was a happy coincidence) instanced the simile in the Iliad for the chase of Hector. 'As in a dream one man may not be able to reach in pursuit another who flees; neither can the one escape nor the other reach him in pursuit; so neither could Achilles catch him on his feet nor Hector escape' (Iliad, XXII. 199, 200). This illustration of the living scene from the dream picture is very much in point.

what may be called the 'external' use of the psychological simile (from consciousness to the material world) in the Rāmāyaṇa. More subtle, and at the same time more frequent, is the illustration of one psychological state from another, as for instance, in the field of pure consciousness, the sense of recovery from wounds is made more vivid by comparison with that of waking at dawn (Rām. VI. 74/70). Or there may be an emotional value, as in the simile for friendship from sensual attraction (Rām. V. 9/20), or an ethical value as in the comparison of saintliness eschewing evil thoughts to the struggle against despair (Rām. VI. 2/4). Perhaps the most subtle of such similes from the immaterial world in the Rāmāyaṇa, though slightly outside the scope of this article, is that drawn from the philosophical conception of the Ātma invisible in material objects to suggest Rāma invisible in battle (Rām. VI. 94/22). In one of the most artificial passages in the Sundarakāṇḍa similes from psychological and abstract ideas are piled up to enliven the conception of Sītā; in captivity in such a fashion as to parade the author's ingenuity but to rob them of all true poetical value (Rām. V. 15/23). This brief summary will suffice to show the background of psychological simile in the Rāmāyaṇa, the epic which perhaps exercised a predominating literary influence over Kālidāsa.

It is well known that Kālidāsa shows material signs also of the influence of his predecessor Aśvaghosa; and the didactic and moral tendency which dominated the Buddhist poet's Sanskrit writings tended naturally to the development of the psychological simile, especially of an ethical type. This is developed, for instance, to absurd lengths in the Temptation scene (Buddhach. XIII. 46-51). This trait in Aśvaghosa has already been noticed by the writer in this Journal¹; and it is sufficient for present purposes to recall:—

- (a) That Aśvaghosa is predominantly interested in the psychological simile based on *ethical* values rather than on phases of consciousness.
- (b) That he uses it for a didactic purpose rather than for its value as a poetical embellishment.

Aśvaghosa will never let us forget that he is the Teacher before he is the Poet. In the works of Kālidāsa ethical values fall into their place with all other phases of human experience as the raw material for literary creativeness.

It is natural therefore that in his use of this type of imagery Kālidāsa should draw on the whole range of psychological experience, the simple consciousness of existence, intellectual powers, volitional impulse, emotional feelings, moral values and religious ideas. The analogy between the mental state and the physical world, or between two mental states, is designed

¹ *Journal R.A.S.B.*, Vol. XXVI, page 175.

partly to increase the charge of actuality and vividness in description, partly to add to that peculiar sense of poetical beauty derived from the presentation of an unexpected resemblance in detached and often remote aspects of reality.

The simple consciousness of existence or vitality suggests to Kālidāsa the simile (reminiscent of Aśvaghosa) from recovery at the point of death to the joy of reunion. 'Blessedly hast thou been restored to me, as I sank in the darkness of separation, like consciousness to one expiring' (Vik. IV. 39; cp. Buddhach. VII. 38). But the natural charm to be found in amplifying the one phase of consciousness by illustration from the other is lost in the pedantic analogy between knowledge derived from a teacher and cosmic vitality imparted by the sun (Ragh. V. 4). It is in fact rather in the opposite direction that the parallelism between the vital consciousness and physical processes contributes to poetical value in Kālidāsa's writing, as for instance in the trio of similes for recovery of consciousness from moonrise, night, fire without smoke, and a river restored to limpidity—water and the mind again! (Vik. I. 7). There is an element of intellectual, as distinct from purely vital, consciousness in the conception of the mental peace and lucidity which comes just before dawn, introduced, with less obvious relevance than is usual in Kālidāsa in the picture of the mother who 'obtained a son as the mind does lucidity in the last watch of the night' (RV. XVII). The point of the simile must lie in the hour of birth with a secondary allusion to the mother's feelings after delivery.

Similes and analogies from the intellectual processes relate to the experience of education, and the acquisition of knowledge, and also to the effects of knowledge, which lie however rather outside the definition of psychological experience. Here again the epics had given a lead, as in the Rāmāyaṇa's suggestive correlation of Sītā and Rāma with Knowledge and a devout Brahman (Rām. V. 4/17); a reminiscence of which may lie behind Kaṇva's consolation on parting with Śakuntalā, 'Like Knowledge imparted to a good pupil, no cause for tears' (Śak., IV. 2/3). The idea becomes entirely secularized, however, in the parallelism between the prince's marriage to neighbouring princesses, and his education in the royal sciences (the personification of the Sciences being, of course, essentially dependent on the conception of polygamy) (Ragh. XVII. 3). The actual process of concentration on study, with more exotic personification of Knowledge, enlivens the injunction to Dilīpa in performance of his vow for offspring, to gain the favour of the sacred cow by constant attendance, as of Knowledge by application (Ragh. I. 88). While finally, to turn from the process of learning to the results of education Sumitrā bears twins as devotion to knowledge produces Enlightenment and Conduct (Ragh. X. 71).

The psychology of memory, as distinct from the process of learning, is naturally prominent in the drama *Śakuntalā*; but with one exception, the easy transition from forgetfulness of a message to failure to recognise a person (*Śak.* IV. 1), the emphasis lies on illustration of the mental state from the physical world, rather than in the opposite direction. The remorsefully introspective Duśmanta feels an unhappy recollection as a poisoned arrow; and is consoled for his loss of memory with the simile of the mirror clouded by dirt, and of that unfailing resource, of Sanskrit poetry, the eclipse of the moon (*Śak.* VI. 9 and VII. 32).

Kālidāsa's use of the simile from Volition well illustrates the influence of the Word on the Idea which arises from the value given to the pun as an ornament in Sanskrit poetry. The experience of driving a smooth-running car on a good road free from dust might be described by the proud owner in colloquial English as 'like a dream'; but to Kālidāsa a similar experience (with a chariot) is 'like a wish fulfilled' (*Ragh.* II. 72). The chariot itself is the wish, the satisfaction of the easy journey is that of fulfilment; and the relevance of the simile is enhanced by the fact that the journey is on a definite mission. Yet, alas, by the critical standards of Western taste (though Shakespeare in his youth would have applauded) its poetical beauty is impaired by the fact that the central feature in the ornament lies in the verbal coincidence which makes a 'wish' the 'chariot of the mind' ('Ratha' and 'Manoratha'). And one can never get away from this punning in the simile from Volition. In the *Mālavikāgnimitra* the prince is hurrying with such dignity as he can retain to see the new dancing girl perform, when the music of the drums quickens his footsteps 'like the sound of his own wish coming down the road to Success' (the 'wish' being, of course, again a chariot) (*Māl.* I. 22). And similarly in the search for Urvaśī the charioteer must have his wish, in a series of puns on the same word (*Vik.* IV. 22). It is a relief to get away from this over-wrought verbiage to the pleasingly simple description of the apes speeding here and there in the search for Sītā under Rāma's direction 'like his own wishes' (*Ragh.* XII. 59); a conception which gains perhaps in force from the more commonplace analogy of swiftness of mind in pursuit of a purpose (*K.S.* II. 63). Somewhat on the opposite side of this parallelism is the implied comparison between a mind intent on its purpose, and flowing water (*K.S.* V. 5) in which, however, the element of emotional affection begins to appear.

The simplest form of imagery from emotional experience lies in the ideas of 'entrance' and 'embracing', which are metaphorical for mental processes in most languages. But here again we are concerned with the less familiar process of poetical embellishment through application of the psychical process to a physical action. Such for instance (though not technically

by simile) is the underlying point in the description of Rama, who 'in keeping his vow to his father intact found his way into the forest and into all good hearts' (Ragh. XII. 9). It is not surprising that in poetry so much influenced by erotic emotion as classical Sanskrit the type of affection from which such imagery is drawn should be predominantly sexual. The monarch entering his new residence resembles a lover entering his beloved's heart (the point being that he is going to *stay* there) (Ragh. XVI. 40); the bridegroom enters the bridal chamber as he does women's thoughts (Ragh. VII. 17). And with the idea of 'embracing' one moves a step further towards the absorption of ornament in this erotic atmosphere. Kingdom, Queen and the goddess Lakshmi are interchangeable elements in a long series of similes from conjugal relations, of which it will suffice to cite one elaborate example, based no doubt on the conventional doctrines of the *Śṛīṅgāra* texts as much as on direct personal consciousness. The young monarch 'for fear lest she should suddenly take fright showed such tenderness in his enjoyment of a kingdom recently acquired as of a bride newly wedded' (Ragh. VIII. 7). ('Avoiding any roughness in his approaches' as advised by Vātsyāyana on a bridal night (V.K.S. III. 2/16).)

A further type of imagery from the emotional to the physical world is that provided by personification of passion in some external object, especially flowers, based on the verbal coincidence in the meaning of 'Rāga' and the conventional association of redness with passion to which this coincidence contributed. The theme is so hackneyed even by the time of Kālidāsa that one can find little interest in it; but it must be mentioned, along with the similar treatment of laughter and fame personified in whiteness which lie outside the psychological field. Slightly more distinctive, though again conventional in its nature, is the trick of making a particular object the personification of passion implied in action. The Svayamvara bride adjusts the garland to its proper place on the prince's neck like the embodiment of affection (Ragh. VI. 43). Carried to the extreme of mannerism the same type of personification represents the rival dancing masters hurrying to place their quarrel before the monarch as 'embodied feelings' (Mal. I. 10).

The difficulty at this point is in fact to find a dividing line between imagery of genuine psychological value, and that from the elaborate system of conventional and catalogued erotic ideas on which the poet could draw. It is surprising to find how large a fund of illustrative resources erotic imagery provides, even in the *Rāmāyaṇa*, for instance in the 14th Sarga of the *Sundarakāṇḍa*. Kālidāsa himself, from the *Meghadūta* onwards, elaborates the art of generating the erotic 'taste' (*Rasa*) by recourse to the same resources either in illustration of one passion from another (of hunting from passion for women, Ragh. IX. 69), of entirely different experiences (victory from the fickle Abhi-

sārikā, Ragh. XVII. 69), of nature in reaction to the individual (the morning wind as the coaxing hand, Md. I. 31; K.S. VIII. 25), or of Nature in its picturesque appearances (the Kinsuka flowers as scratches, Ragh. IX. 31). This tendency reaches a climax in the 8th Sarga of the *Kumārasambhava* where in fact subtle changes in its development contribute to discrediting Kālidāsa's authorship.

On the other hand, Kālidāsa's poetry is rich in studies of emotional states devoid of this erotic feeling, such as family affection, the transition between happiness and distress, indecision in parting, etc., illustrated with vivid touches of imagery from the physical world, which it would go beyond the present scope to detail, but which will suggest themselves at once to any of his readers.

The psychological imagery so far discussed has been devoid of ethical implications. There remains a class of similes in which the whole point of the comparison lies either in the moral value of the experience serving for illustration or on the results of moral effort. The simplest form of simile from ethical experience turns on the conceptions of conflict or of crossing. Parallelism between battle and the moral struggle of the individual soul is a commonplace in many languages; but the distinctively Sanskrit application, in which Kālidāsa is only following the beaten track, is that which draws on the internal struggle within a man's heart to illustrate conflict and aggression among mankind. 'Then he proceeded by the land route to overcome the Pārsikas, as the self-controlled man overcomes the senses by knowledge of the Absolute (Ragh., IV. 60).' The same theme reappears in the contrast between the retired monarch in the Āśram and his young successor on the throne; and is done to death in the picture of the model prince, in which, however, the six passions replace the five senses as the enemy (Ragh. VIII. 17; XVII. 41). More peculiar, perhaps, to Indian thought than the commonplace of conflict is the analogy between the physical and psychical worlds in the sense of 'crossing'; and the efficacy of simile in adding dignity and vividness to description could not be better shown than in the three words comparing Hanumān's flight across the sea to the detachment of a selfless life (*samsāram iva nirmamas*, Ragh. XII. 60). The peculiar appropriateness of the simile in the context gives vitality to what might otherwise be a frigid and pedantic analogy between keeping of his promise by a man true to his word, and the crossing of the river in the very act of reluctantly doing so (Ragh. XIV. 52—Lakṣmaṇa deserting Sītā).

Comparison of the world oppressed by diabolic activities to the sense of involuntary sin goes deeper still into this introspective type of imagery; and well marks the contrast with Western literature. 'The three worlds afflicted by Rāvaṇa, like the heart of a saintly man by Sin entering against his will'

(Ragh. X. 39) are after all, from the view-point of popular orthodox theology, very much the same as the Christian's world (or at least Job's) afflicted by Satan; but it may be doubted whether any parallel could be found for a simile so exotic and yet so pointedly full of meaning.

In the curious simile to be found in the same Sarga of the Raghuvamśa from modesty as an ornament to prosperity to son and mother (*Ibid.*, 70) we are still on ethical grounds; but the moral force of the experience is weakened when the point of the comparison lies not in the reaction of the individual to circumstances but in the vulgar idea of the reward of virtue. The procession of the Gods and Rishis accompanying Viṣṇu 'like success following a worthy enterprise' (K.S. VII. 71) will serve to illustrate this type of simile which, however, is only on the borderline of the psychological. Imagery from Success and Failure in Kālidāsa depends in fact for the most part not on psychological experience but on the conventionalized conception of Nīti and rules of conduct as laid down, for instance, by Kauṭilya. The literary stock at the poet's disposal under the conception of Artha, just like that provided by conventions in the world of Kāma, are not true psychological imagery and lie outside the scope of this study.

Similarly, in the case of religious experience, it is not easy to isolate imagery of a psychological nature from that based on philosophical and doctrinaire tenets, and facts of religious practice such as asceticism. The long series of similes from the conceptions of 'Dharma' and 'Tapas' and life in the Āśram must therefore be excluded. There is one conception however, that of 'Faith' (Śraddhā), in which, cautious as one must be about admitting analogies with its connotation in other religions, a psychological content does seem to underlie the personification characteristic of Kālidāsa. The union of faith and ritual observance appears (again with special relevance to the activities illustrated) in the simile for prince and queen in attendance on the sacred cow (Ragh. II. 16) and also in the Rishi's blessing on Pa, Ma and Baby at the conclusion of the Śakuntalā. 'Blessings on the saintly Śakuntalā, her child and thyself as on the union of Faith, Wealth and Observance, three in one' (Śak. VII. 29).

In fact the psychological world, the range of conscious and sub-conscious experience, is only one branch of the field of abstract ideas on which Kālidāsa draws for the ornament of simile and imaginative interpretation in all its forms. It is this faculty of illustration from the abstract to the concrete which is distinctive, not of Kālidāsa as compared with other Sanskrit writers, but of Sanskrit literature as a whole compared with the Western classics. Individual instances to the contrary will no doubt occur to readers familiar with some particular Greek or Latin poet; but most will agree with the generalization

in which this contrast is drawn; and the sectional study of one particular feature in one particular poet, to which this article has been devoted, is only a sign-post to the underlying mentality of a whole literature.

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Korku Funeral Customs and Memorial Posts.

By K. P. CHATTOPADHYAY.

In a recent note contributed by Major Gordon¹ the Korku memorial tablets have been described in some detail, and illustrations published along with the descriptions. The tablets studied were put up by Korkus of the Chhindwara district. A different type of memorial is erected by the Korkus of Melghat and adjoining areas. These memorial posts, known as *munḍas*, have been described in the *Gazetteer of the Amraoti District*² and in the note on Korkus by Russell and Hiralal.³ The memorial tablets of the Korkus of Betul have been recently described by Rai Bahadur S. C. Roy who has mentioned also this type of memorial posts.⁴ No illustration of this type of 'munḍā' has, however, been so far printed in any recognized scientific journal.

There is an unpublished note on the Korku *munḍās*, sent to the Calcutta University along with a specimen of a *munḍā*, in 1922, by an officer of the Melghat Forest Division, through Rai Bahadur Hiralal. In September-October 1938 and again in January-February 1941 the writer of this note paid short visits to the Melghat area, to collect certain details regarding the Korkus. Information regarding the Korku funeral customs was collected from a number of informants in the Melghat area. A careful study was also made of different types of memorial posts. The information collected is summarized in this article. Details from the unpublished note already mentioned and from the other sources are indicated, where mentioned for comparison or confirmation.

One of the accounts of the details of the disposal of the dead was obtained by the writer from Mr. Batu, an educated Korku, posted at Chikalda as revenue inspector. He is of the Beṭhe clan and hails from the Dharni Tahsil. Another account was obtained from Bhau of village Tetu. A third account was collected in the village of Gol Tikri in Sembadoh, from a group of village elders, including the Bhumkā (village priest). A fourth account, to check certain details mentioned by Bhau, was obtained from the elders of the village Bori in Chikalda range. Certain

¹ Korku memorial tablets, by Major D. H. Gordon, *Man*, 1936.

² Central Provinces District Gazetteers, Amraoti District, Bombay, 1911.

³ The Tribes and Castes of the Central Provinces, by R. V. Russell and Rai Bahadur Hiralal, Vol. III, London, 1916.

⁴ A note on Korku memorial tablets, by Rai Bahadur S. C. Roy, *Man in India*, 1936.

additional details were obtained from the Patel (headman) of the old village of Sembadoh, and from old men in Multanidhana (Sembadoh), in Bori (Harisal range) and in Ghatang and from two men of Salona. As noted by Russell and Hiralal, the Korkus bury their dead. Each village has its own special site for burial, and the body is carried there by the villagers, under direction of the 'Panch' (village council). The corpse is clothed in white if of a man or a widow woman. A married woman is clothed in red. The grave is dug south to north about 3' deep, and a few copper coins are thrown in before the body is lowered into it. Some rice or grain and a whole turmeric are tied to a corner of the cloth of the corpse. A little grain is also thrown into the grave, and some grain and turmeric powder are sprinkled round the borders of the grave. The body is then laid on its back with the head to the south. According to my informants in Sembadoh, bark of the *moin* tree (*Lannea grandis*) is placed, a piece each, on the head and belly and one on the legs. Earth is now thrown in about half a foot, and then thorns of *ber* (*Zizyphus sativa*), *bābul* (*Acacia arabica*) and other trees. More earth is now put in until the grave is full. On the top each man of the party will put a stone on the grave. A few branches of the *Ākwā* tree (possibly *Calotropis gigantea*) are also stuck on the grave. The mourners and villagers now bathe in a stream and return home. Here, at the house, the women-folk have kept under a small basket some grain at the spot where the man or woman died. At Sembadoh and Tetu, I was told that flour was so kept. As the funeral party return, the basket (*tuknej*) is taken off. If the heap of grain or flour is seen undisturbed, the person is held to have died a natural death. Any disturbance is taken to indicate that witchcraft has been responsible for the death.

Food is now cooked (rice) and a portion of it offered to the deceased on a *palās* (*Butea frondosa* Roxb.) leaf or a brass plate nowadays. All the relations offer a little food to the departed, mentioning his or her name (unless there is a taboo for the particular relative to utter the name), and then sit down to the funeral feast. Mr. Batu stated that on Dharni side, they called this rite *Pitar Miloni*. Russell and Hiralal have noted that 'after the lapse of some days the deceased's family or relatives go to the burial place taking with them a piece of turmeric. This they cut into strips, and placing them in a leaf-cup pour water over them. As the water falls on the tomb, a god is called to witness that this day the man's spirit has been sent to live with the ancestors. The pieces of turmeric are then tied in a cloth which, after receiving an oblation of fowl's blood, is suspended from the main beam of the house, this being considered the dwelling-place of the departed. This ceremony, called *Pitar Miloni*, is the first rite for the admission of the deceased with the spirit of his ancestors, and preliminary to the final ceremony of *sedoli* which

may be performed at any time between four months and fifteen years after the death. But until it is complete the spirit of the deceased has not been laid finally to rest and has the power of sending aches and pains to molest the bodies of its living relatives'. Each clan has its own area for the *sedoli* rite, at which a *munḍā* or tomb post fashioned from 'an unblemished teak or salai (*Boswellia serrata*)' is erected. A goat is sacrificed and a feast held, accompanied by song and dance. The turmeric strips are smeared with the sacrificial blood. Next day the tomb post is erected, and the turmeric pieces thrown into a river saying 'ancestors find your home'. It is stated that the pith of a bamboo may be substituted for turmeric to represent the bones and alternative disposal of the bones in a crab hole is also mentioned. The slicing of a turmeric into strips and pouring water thereon are unknown near about Sembadoh or in Dharni. In the Gazetteer it is stated that the memorial post is planted under a *mahuā* tree. The bones are said to be represented by bits of bamboo or five crabs' legs. In the unpublished note it is stated that the *sedoli* should be performed a year after the death. If the *sedoli* is not performed the deceased sends cough, fever and rheumatic bodily pains to the relatives and also the village in general. The villagers then press the relatives to perform the rite—unless they take it up on their own initiative. A date is fixed and five old men cut a log from a teak tree which must be a seedling tree. It is cut down after making offerings of liquor and purchase money in the shape of a few coins, as noted by Russell and Hiralal. The log is not allowed to touch the ground but carried on shoulders by four persons one of whom must be the eldest male of the family. It is then shaped to have a square cross-section, is about three feet in length and pointed at the top. It has to be taken to the village where the ancestors of the deceased lived. All the writers note that various designs including the sun and the moon are carved on the different sides. It is stated in the note that the pointed end is painted red. In the dance at the *sedoli* ceremony, the men and women form separate rings and each party abuses the other. At the end of the ceremony a hut is erected over the *munḍā*. If the deceased was a village headman or a *parhar*, i.e. one who was often possessed by spirits and deities, the *munḍā* is treated as a god and is worshipped. According to Russell and Hiralal, one *munḍā* should be put up for each ancestor, but 'poor persons make one do for several and their figures are then carved' below that of the principal ancestor commemorated. My informants stated that the *sedoli* is performed very rarely nowadays. Mr. Batu stated that on Dharni side, it is celebrated only for a man of importance. This seems to be the case also in many of the forest villages at present. In the villages of Tetu and Memna I did not find any *munḍās*, and the custom was reported to have fallen into abeyance. In Bori village

(Chikalda range), however, the custom still lingers. The village site is on the top of a hill, about a couple of furlongs from the main road. The *munḍās* have been erected near a stream, under a mango tree, close to the public road. At the time of my visit in 1938 there were five *munḍās* of the ordinary type, which I shall call the solid type (Photo 1). Of the five *munḍās*, two were very old, and the latest was erected six years ago. There was also the dilapidated remains of a hut, which was stated to have been a *munḍā* hut. The site for the *munḍās* of the village of Salona is also under a mango tree, near the main road. There were sixteen *munḍās*, of which five were of the solid type and eleven of a different type which I shall call the pillared chamber type. There was also the broken remains of a seventeenth *munḍā* of the latter type. I was able to obtain the names of only a few of the men whose memorial posts these were. They were all of *Jāmun got* (clan) and of some influence and wealth. The Paṭel of this village has also erected a *munḍā* to his father's memory but as he is not of *Jāmun got* the post is in another village. At the old site of the village Sembadoh I saw two old *munḍās* of the solid type under a teak tree by the roadside. Two other solid type *munḍās* were seen in October 1938, also in a similar site, near the village Multanidhana across the river. The *sedoli* had not been performed in this area for some years previously. In 1941, the writer found a third *munḍā* in the site near Multanidhana, erected early in 1939. It is of Dholja, the deceased Paṭel of Masandi, a village near Salona. The *munḍā* was erected by his son Nangu who is now Paṭel. One of the other two *munḍās* was erected by Thunji, the Paṭel of Makhla in memory of his father and mother. All these men are of Kasada clan. A group of a dozen solid type *munḍās* was also observed near the village of Mungia, in the Harisal range. The different types of *munḍās* and the designs on them are described at the end of the paper. I shall now describe the ceremony as reported to me.

The *sedoli* is generally performed in the month of Māhā (Jan.-Feb.). It may, however, also be celebrated in Ākhāti (April-May) but not in the interval between these two months. Ordinarily it should be performed a year after the death, but five to ten years even may elapse. In all the villages the writer was told of the signs of displeasure of the deceased, previously noted, at such delay in performing the rite. A date is fixed for the ceremony, which must fall on a Tuesday. A preliminary ceremony takes place on the previous day, i.e. on Monday. First of all, a small basket called *dabliḥ*, i.e. like a *dabli*, is made of bamboo strips. Stalks of grass, of the kind known as *pavana* (*Ischaemum sulcatum*) or *sonā* are fetched and seven pieces of one finger's length are taken for each dead person. They are said to represent bones of the deceased. Bamboo pieces are not allowed as substitutes on the Dharni side; but in Sembadoh,

and other forest villages in Melghat, this was stated to be permissible. These 'bones' are placed in the small basket. On Monday these 'bones' in the basket are carried to a stream by young unmarried girls. Opinion differed on this point to some extent. The 'bones' are rubbed with turmeric paste and washed in water. A cock is now sacrificed on the river bank and the blood offered to the deceased ancestors. A new cloth is put on the basket and it is carried home. On Dharni side the Dhunkā finds out by throwing grains into the upturned joined palms of relatives as to who should offer the cloth. What sign is observed was not told to me. The basket with bones and with the cloth on it are placed on the slightly raised platform at the base of the central post (*dhāran*) of the hut. Relations worship the deceased so represented by bones with (or at least make offerings to it of) turmeric powder and rice powder. All my informants agreed that there is singing and dancing. The women sing the marriage songs, as if it is a marriage ceremony. In the meantime the *munḍā* has also been made. A teak sapling, which has not flowered, is cut at night on the same day as the grass stalks for bones are gathered. The trunk has to be fashioned to shape and completed before dawn. The figures incised on it may, however, be done later. The post is 3' to 4' in length, and about a foot's length is buried in the ground. All persons, who have died since the *sedoli* was last performed in the family, have their figures inscribed on the *munḍā*. The principal person for whom the post is being erected gets his conventional figure first; then come the others. Children of the same parents can have their figures on the same face of the *munḍā*; members of the same family who resided together, i.e. of the same house, can have their figures on the same *munḍā*. The *munḍā* post must be complete and ready on Tuesday morning. Mr. Batu stated that the *munḍā* was made of *mahuā* wood. But all the other informants mentioned the teak tree, which agrees with the published accounts. So far as I was able to judge from inspection, the actual memorial posts were of teak.

On Tuesday morning, the basket of 'bones' will be taken to the open space in front of the village known as *Ākhāri ballā*, where the cattle are assembled each morning when taken out to work or to graze. There is a deity here, the *Ākhārideo*, under a tree. A goat is sacrificed to him now. Further dancing then takes place and the *munḍā* is also carried when dancing. Unmarried girls carry the bones but men carry the post. The post and the basket are then put back in the hut, the bones remaining on the platform previously mentioned. Mr. Batu stated that on Dharni side, a shed like that put up at marriages is erected at the *sedoli* ceremony (on Monday). The *munḍā* is kept against the central post of this shed when not being carried at any ceremony. At Bori, Tetu and Sembadoh I was told that the basket of 'bones', referred to as 'flowers' from Tuesday,

is kept this night, outside the village preferably, on a *ber* (*Zizyphus sativa*) tree. According to the Patel of Ghatang, it is kept in the watch hut in the fields of crop. In Dharni, the *Bhumkā* throws grains, in the evening, to divine which of the alternative sites the 'bones' favour.

Next morning, i.e. on Wednesday, the villagers and relatives go dancing to the site where the memorial post is to be erected. The 'bones' are carried in the basket by girls and the post by men as usual. A hole is now dug in the ground, rice and turmeric placed in it and the *mundā* put in position by the eldest male of the house. The basket of 'flowers' (*phul*), as the bones are termed, is kept beside it and offerings are made and worship (*pujā*) performed. The 'bones' are now to be disposed of in water. A square is drawn of flour of wheat or some grain on the bank of the stream (near the *mundā* site) and the basket is put on it. Worship is now done to the 'bones' and further dancing takes place. The 'bones' are then taken on upturned palms by the chief performer. He gets into water, and turns his hands upside down in the water. In Sembadoh, I was told that the bones are placed in a crab hole, with the basket. The party now return and partake of a feast. Later on, a hut is erected over the *mundā*. It should be put up before the rains. The *mundā* sites are generally selected near public roads, so that passers-by may make offerings. If, for example, a Korku was taking tobacco when he was passing it, he would, I was told, drop a little tobacco as offering to the *mundā*.

Spirits of the dead members of the family, for whom the *sedoli* is being performed, and also those for whom it has been performed before, are said to come and possess men and women during the first two days of the ceremony. The person possessed will shake his or her head, and speak to the relatives. Wine or food may be asked and this has to be supplied. When the spirit is satisfied, it departs.

Mundā types.

Mention has been made of two types of *mundās*. The solid type has already been described. The other type has a pillared chamber in the lower part. The post is hollowed out, leaving four pillars at each corner of it to support and join the portion above with the base. Photos of two such *mundās* are given. The first (Photo 2) is said to be of a woman. The total height above the ground is nearly 30'. The solid base extends to a little over 7" above the ground. Next comes the pillared and square chamber of height 4", with a carved image inside it, at the centre, facing north. Next there is another 10" of solid post of square cross-section. Then comes the pointed top, making up the total height noted. The side posts of the chamber in front have each a figure apparently of a woman carved on it. The panel above the chamber has another figure also, it seems, of a

woman in the centre. There is also a representation of the sun and the moon. I was not able to obtain the name and other details of the deceased thus commemorated and propitiated.

The second photograph (Photo 3) is of a *mundā* erected in memory of a prosperous Korku of Salona, of name Bhura. A masonry platform encloses its base. The total height above the platform is 3'. The faces are $7\frac{1}{2}" \times 6\frac{1}{2}"$, the wider surfaces being the front and rear of the post. The solid part at the base is 6", the pillared chamber 8", with a human figure 6" high and carved out of wood, at the centre of the hall. It showed marks of turmeric and rice flour coloured red with lime and turmeric, used in ceremonial, when seen by the writer in September 1938. There are numerous designs including that of the sun and the moon, on the face of this *mundā*.

In Sembadoh, the figure of the principal deceased was found carved on one of the solid type *mundās* at the place where the pillared hall is usually scooped out. Above it, were carved seven other small figures, of members of the same family. At Bori, one of the *mundās* was erected in memory of seven persons, of different parentage but of the same family. One face had the sun and the moon, and below it, two persons riding on horseback. On another face were three and on a third face, two more figures. A second *mundā* had two human figures, with a spidery carving below on one face. The sun was carved on the opposite face. A third face had two figures on horseback. It was said that if a man had a horse and had ridden it in his lifetime, he would be shown as riding it, on the *mundā*. The designs of the older *mundās* could not be clearly seen and it was not possible to clean them to enable me to study the carvings. The solid type *mundās* were of smaller cross-section than the chambered variety. The *mundā* in the museum of the Anthropology Department of the Calcutta University is 2' 8" long and has a cross-section $3\frac{1}{2}" \times 3\frac{1}{2}"$. On one of the faces, probably that allotted to the principal deceased, is a representation of the sun, and above it the moon. Below the sun, comes a human figure. There is also what is very like a conventionalized representation of a human ear. If this face is called the north face, then on the east face there is, near the base, from the end a human figure; then above it, a peacock and a bear or wild dog. There is also a man on horseback. On the south face is another human figure, also standing, and above it a conventionalized figure of a hut, and finally an elephant. On the fourth side are the usual criss-cross geometrical design and also a representation of the Korku *dako* or two-sided drum. This drum is played when a *Parhar* possessed by a deity is being asked questions. Presumably the deceased was a *Parhar*. Rai Bahadur S. C. Roy notes that a human figure carrying a drum, carved on a *mundā* was explained to him as that of 'an *ojha* or a *ghost-doctor* playing on his drum'. Apparently it is the figure of a *Parhar*. Roy was further told that

'formerly stone mundas or funeral tablets used to be set up'. He found a few stone *mundās* at the memorial site in the village of Amadhana in the Betul district. 'With regard to the representation of the sun and moon . . . the Korkus do not actually worship or appease the sun and moon but regard them as identical with or representative of Bhagwan.'

The similarity of these stone memorials to stone tablets and pillars on graves or memorials erected by Mundas, Hos, Bhumij and Pahiras have been pointed out by Roy, who suggests that the Korkus also probably had a similar custom earlier. Gordon suggests that the Korkus probably imitated the Hindu custom of carvings on memorial pillars such as the *Virgal* and *Sati* stones. Roy accepts this view and proceeds to elaborate it. According to him the Korkus who used to put up simple stone memorials like Mundas and others 'subsequently took to representing on them the figures of the departed' prompted by the Hindu examples. But as stone is difficult to work and costly, 'the setting up of wooden tablets came to be substituted'. It may be pointed out that such a substitution has taken place among the Maria Gonds of Bastar. Grigson has noted instances of replacement of stone by wood in memorial pillars.¹ There is, however, no direct evidence that the custom has been copied from Hindus, as suggested by Gordon and Roy.

As this paper is only a preliminary note on Korkus, I shall not discuss the custom in detail here. It may, however, be pointed out that the *sedoli* festival has many points in common with the final bone disposal rites of the Santals and Oraons.² Like these tribes, they consider the ceremony as a kind of marriage rite of the departed. Bones, or their conventional substitutes, are kept until the final ceremony. They are then disposed of in water. The writer also found that the Korkus believe that apart from their supposed home elsewhere, the ancestral ghosts reside in the family hut at the base of one of the posts.³ Offerings are made here by Korkus at certain social ceremonies, as at marriage and also before eating new crops comparable to the offerings made to ancestral ghosts in the *bhitar* by Santals. The Oraons still occasionally erect stone menhirs as memorials. The Santals occasionally do so to commemorate a dead founder of a village. In general, the menhir has been replaced by a short upright piece of stone in the *Mānjhithān*, one for each deceased *mānjhi* or even only one piece of stone for all. In some villages,

¹ The Maria Gonds of Bastar, by W. V. Grigson (1938).

² The details regarding Santals are taken mainly from unpublished data collected by the writer. Some of the points have been noted by Boddington and others. For Oraons, see Oraon Religion and Customs, by Rai Bahadur S. C. Roy, Ranchi, 1916. Also, The Religion and Customs of the Oraons, by Rev. P. Dehon, *Memoirs of the Asiatic Society of Bengal*, Vol. I, 1906.

³ Unpublished notes on Korkus based on data collected by the writer.

upright pillars of wood (saplings) are put up in the *Jāherthān* at the Baha festival to represent each dead *mānjhi*.¹ But, as among Korkus, these older customs have fallen into abeyance in most areas. The Mundas, Gonds and other tribes of Chotanagpur and Central Provinces, who have similar beliefs, have also certain parallel customs. These will not be discussed here, as a comprehensive survey of these rites has been made in a separate paper, which will shortly be published. Attention may, however, be drawn to another matter—the striking resemblance in structure between the Korku *mundās* and the Hindu *br̥sakāṣṭhas* of Bengal. Here also we have two types, a solid type and a chambered variety with four pillars (Photo 4). They are also memorial posts.² *

¹ Unpublished notes on Santals based on data collected by the writer.

² A survey of the *br̥sakāṣṭhas* of Bengal was made by Mr. B. K. Chaudhury of the Indian Museum in 1937-38 and an abstract published in the *Proceedings of the Indian Science Congress*, 1938. The photograph, here printed, was obtained long prior to the publication of that Abstract, in connection with the present writer's study of Hindu social customs, during 1935-36. A photo of *br̥sakāṣṭhas* has recently been published in the 'Folk-art of Bengal' by A. Mukherji, (Calcutta University Publication).

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Photo 1.



Photo 2.

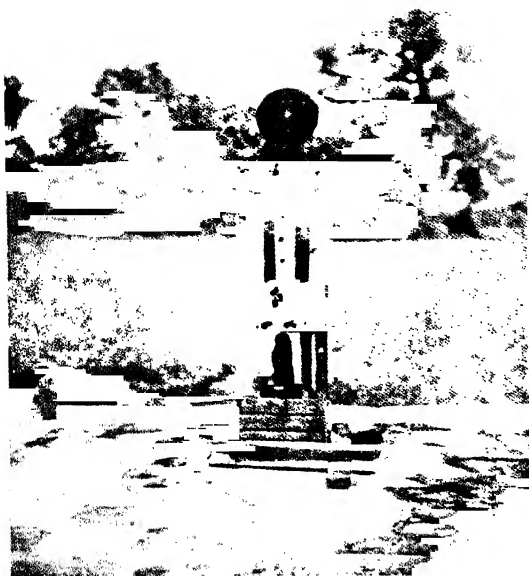


Photo 3.

Photo 4.



**Some terracottas from Mathurā preserved in the
Francis Hopp Museum of Asiatic Arts.**

By CHARU CHANDRA DAS GUPTA.

INTRODUCTION.

It is well known that the early Indian terracottas have been found in considerable number from various sites and preserved in different museums of India, Europe and America.¹ These figurines whose period extends from the prehistoric to the latest ages of ancient India help us to form our ideas regarding the following important points. First, they, unlike any other kind of Indian plastic art, furnish us with the valuable evidence for proving the evolution of ancient Indian sculpture from the prehistoric to the latest ages of ancient India. Secondly, they supply us with the valuable information regarding the problem of the intrusion of the foreign element in early Indian sculpture. Thirdly, they furnish some valuable data regarding the religious and secular aspects of life. Thus it is clear that the study of ancient Indian terracottas is one of the most important topics in the field of ancient Indian plastic art. The object of this paper is to study an excellent collection of these specimens in the Francis Hopp Museum of Asiatic Arts at Budapest.²

The collection under discussion was kindly presented to the said museum by the late Mr. Imre Schwaiger, the art-dealer of Delhi and London. All these specimens are reported to have been found in Mathurā; but no information is available regarding the actual depth in which they have been found. It must be pointed out here that the exact knowledge of the stratum in which an uninscribed specimen has been found is of no use in the determination of its age unless some inscribed or datable object is also found in association with it. Therefore the age of ancient Indian terracottas can be determined by studying the findspot of an object and the inscribed objects found in association with it.³ When these evidences are lacking, recourse is to be taken to stylistic evolution and comparison with dated specimens. Therefore we can arrive at an approximate conclusion regarding

¹ *Journ. Roy. Asiat. Soc. Bengal. Letters*, Vol. IV, pp. 67-120.

² I am greatly indebted to Dr. Zoltan de Takacs, Ph.D., Director of this Museum, for all facilities which he has given me for the preparation of this paper.

³ This point has been fully discussed by me in the *Indian Historical Quarterly* Vol. XII, pp. 140-41.

the age of these figurines by the consideration of stylistic evolution and also by comparing them with those specimens whose age is already known.

These specimens may be ascribed to the following ages, viz., I. Post-Indus Valley pre-Maurya,¹ II. Maurya, III. Śuṅga, IV. Kushāṇa, and V. Gupta.

POST-INDUS VALLEY PRE-MAURYA.

1. A female figurine whose arms and lower body from a little below the breasts are lost. The eyes are diamond-shaped; the nose and the mouth are very crudely indicated and the ears are not shown. The hair whose presence is shown by its elevation from the body-surface is set in the *applique* manner and is coiffured in a peculiar way. It wears a necklace which is set in the *applique* manner. There is a curved line, made of dots, on the forehead and there are also ten incised circlelets just below the neck. (Fig. 1.)

2. A female figurine whose arms and lower body from a little below the breasts are mutilated. The eyes are diamond-shaped; the nose is extremely mutilated; the mouth is open and the ears are not shown. The hair is indicated by the incised vertical lines. The upper body is bare. It wears three dog-collared necklaces which are made of closely set and incised circlelets; seven leaf-like pendants are attached to the lowermost of these necklaces. Round its left shoulder there is a strip of clay which possibly indicates the remnant of a necklace. (Fig. 2.)

If we consider the style of these two specimens, then we should conclude that they belong to the same group and consequently to the same age for the following reasons. First, both have the hand-modelled body. Secondly, the hair and the necklace of Fig. 1 as well as the leaf-like pendants and the flowing necklace of Fig. 2 are set in the *applique* manner. Thirdly, the treatment of the eyes is similar in both specimens. Fourthly, the incised circlelets below the neck of Fig. 1 and the incised circlelets which form the dog-collared necklaces of Fig. 2 are exactly similar in treatment. So far as the age of these two figurines is concerned, we should consider the above-mentioned four characteristics. It is well known that the terracotta figurines of the Indus Valley age have the main body hand-modelled and have some constituent parts of the body and the decorative apparels set in the *applique* manner;² but these two figurines have the main body hand-modelled, have some decorative apparels set in the *applique* manner, and also some constituent parts of the body and some decorative

¹ For the exact significance of this term, see my article in *Ostasiatische Zeitschrift*, Vol. XII, p. 189, foot-notes 2 and 3.

² *Journ. Roy. Asiat. Soc. Bengal. Letters*, Vol. IV, pp. 67-120.

apparels set in the incised manner. The last characteristic of these two specimens naturally leads us to conclude that they are to be placed later than the Indus Valley age. In course of our later discussion we shall show that these two specimens are to be placed earlier than the Maurya age. Therefore these two figurines should be ascribed to the post-Indus Valley pre-Maurya age. It is interesting to note that the incised circlelets found in Figs. 1 and 2 and the curved line made of the incised dots in Fig. 1 are found in some South Indian specimens.¹ There is no definite characteristic in these two figurines by which we might call them ~~either religious or~~ secular.

MAURYA.

3. A female figurine whose arm and lower body from a little below the breasts are lost. The eyebrows are indicated; the eyes are petal-shaped; the nose is naturalistically treated and the mouth is indicated. The hair is tastefully coiffured. The head-dress is highly ornamental. It wears a tiara made of beads and a dog-collared necklace to which four leaf-like pendants are attached. (Fig. 3.)

4. A human figurine whose head only is preserved. The face is moulded; but the double stringed tiara made of beads is set in the *applique* manner. The eyebrows are indicated; the eyes are petal-shaped; the nose is, to some extent, broad, and the mouth is indicated. It seems that the ears which were originally modelled have broken down. The hair is tastefully coiffured. (Fig. 4.)

5. A human head. The face is moulded but the ornaments are set in the *applique* manner. The eyebrows are indicated; the eyes are petal-shaped; the nose is, to some extent, broad, and the mouth is indicated. It wears a huge and jewelled head-dress and an ornamental tiara. (Fig. 5.)

6. A male figurine whose arms and lower body from the waist are lost. The face and the body are moulded but the ornaments are set in the *applique* manner. The eyebrows are indicated; the eyelashes are indicated by the incised dots; the eyes are petal-shaped; the nose is, to some extent, broad; the nostrils and the mouth are prominently indicated. It wears a head-dress and a dog-collared necklace which is set in the *applique* manner. (Fig. 6.)

7. A male figurine whose arms and lower body from a little below the chest are lost. The body is moulded but the ornaments are set in the *applique* manner. The eyebrows are

¹ For the incised circlelets, see *Catalogue of the Prehistoric Antiquities in Government Museum, Madras*. By R.B. Foote, pp. 22-23, 28-29, 36-37, 48-49, 50-51, pls. II. 217, 218, 294; III. 538, 537, 557, 566, 570; IV. 546; V. 300; VI. 392; for the curved line made of incised dots see *ibid.*, pp. 26-27, pl. II, 273.

indicated; the eyes are petal-shaped; the nose is broken; the mouth is also broken and the ears are indicated. It wears a head-dress, large ear-rings and possibly one dog-collared necklace. (Fig. 7.)

8. A male figurine whose arms and lower body from a little below the waist are lost. The body is moulded but the ornaments are set in the *applique* manner. The eyebrows are indicated; the eyes are treated in the naturalistic manner; the nose is greatly mutilated and the mouth is indicated. It cannot be definitely said whether the ears were indicated. It wears a head-dress and a necklace. (Fig. 8.)

9. A male figurine whose arms and lower body from a little above the waist are lost. The body is moulded but the ornaments are set in the *applique* manner. The eyebrows are indicated; the eyes are treated in the naturalistic manner; the nose and the mouth are indicated. It wears a high and peculiar head-dress and a broad dog-collared necklace. (Fig. 9.)

If we consider the style of these figurines, then we find that these specimens are to be placed later than the post-Indus Valley pre-Maurya terracotta figurines discussed before and also form a group by themselves. It cannot be doubted that Figs. 3-7 belong to the same age and to the same group on account of the similarity in the treatment of the eye which is petal-shaped. Figs. 8 and 9 also belong to the same age because in these two specimens also the whole body is completely moulded, the eyes are naturalistically moulded and the necklaces are set in the *applique* manner. The first and the second characteristics connect it with Figs. 3-7 and the third with Figs. 1 and 2. Therefore it is apparent that Figs. 8 and 9 belong to the same age as Figs. 3-7. Though all these specimens belong to the same age, yet, if we judge them from the standpoint of modelling, they might also be divided into the following sub-sections, viz. (1) Figs. 3-5, (2) Figs. 6 and 7, and (3) Figs. 8 and 9.

Let us discuss whether these figurines are religious or secular. In order to tackle this problem we shall have to consider the sex of these specimens. Fig. 3 is female, Figs. 6-9 are male and the sex of Figs. 4-5 is not recognizable as the main body of all these examples is lost. Let us, first of all, discuss Fig. 3. It has been almost customary on the part of Indologists to identify similar figurines as representing Mother Goddess, but this view seems to be not acceptable. Mr. V. S. Agrawala, who has published an article on some Mathura terracottas,¹ has called certain figurines, similar to Fig. 3, as female divinity.² First, he has quoted certain remarks of Sir Aurel Stein to

¹ *Journal of the United Provinces Historical Society*, Vol. IX, pp. 6-38, pls. I-XIX.

² *Ibid.*, pp. 17-19, Figs. 9-14.

support his identification.¹ Against this view it should be stated that Sir Aurel Stein's view seems to be not acceptable. Secondly, he has quoted certain passages from the Vedic and Brahmanical literatures and wishes us to believe that this type of female figurine represents Earth Goddess.² It is true that the passages quoted by Mr. Agrawala give us the earliest Indian conception of Earth but they do not give any evidence to identify these figurines as representing Earth. In fact, it is well known that the Vedic and Brahmanical literatures do not possess any passage of iconographical significance similar to the Brahmanical, Buddhist and Jain iconographical texts of the later ages of India. Therefore we are to study this problem from a different point of view as iconographical literature is lacking. First, it should be pointed out that all early Indian female figurines are not religious. This conclusion may be arrived at from a comparative analysis of the specimens themselves. Secondly, all the female religious figurines do not belong to the same category.³ If we consider Fig. 3, we find that there is no definite characteristic by which we might term it as either secular or religious. Therefore we cannot definitely say whether this specimen is secular or religious. Let us now consider Figs. 6-9. Fig. 6 seems to be secular, because, besides the absence of any religious emblem, it wears a head-dress and a necklace which are secular in character. In the same manner Figs. 7-9 appear to be secular because, besides the absence of any religious emblem, they wear the head-dress and the necklace which are secular in character. Further Fig. 7 wears the ear-rings which are characteristically secular. Let us now consider Figs. 4 and 5. These figurines are also secular, because, besides the absence of any religious emblem, they wear the head-dress which is characteristically secular.

ŚUNGA.

10. A human figurine whose lower body is lost. It is completely moulded. The eyebrows are indicated; the eyes are petal-shaped; the nose is broken and the mouth is indicated. It wears a highly ornamental head-dress which has, on each side, two spoked wheels interspaced by one symbol. Besides this head-dress there is one symbol on its right side, which is difficult to be identified. From its presence on its right side it might be

¹ *Journal of the United Provinces Historical Society*, Vol. IX, pp. 19-22.

² *Ibid.*, p. 26.

³ Dr. Murray has rightly classified the early female religious figures under three groups, viz., (1) the Universal Mother or Isis type, (2) the Divine Woman or Ishtar type, and (3) the Personified Yoni or Baubo type. (*Journal of the Royal Anthropological Institute*, Vol. LXIV, pp. 93-100, pls. VII-XII.) It is, therefore, apparent that the female religious figures should be classified under different groups on the consideration of motifs.

held that a similar symbol was possibly on its left side also. It wears a tiara made of beads.¹ (Fig. 10.)

11. A female figurine whose lower body from a little below the breasts is lost. The face is so worn out that nothing can be said regarding the nature of its eyebrows, eyes, nose, mouth and ears. There is the faint trace of the developed breasts. It wears a dog-collared necklace and an elaborate head-dress. (Fig. 11.)

12. A male head. It is completely moulded. The eyes are well marked; the nose is broad and the mouth is half-open. It wears a Perso-Hellenistic head-dress. Its racial in character. (Fig. 12.)

13. A female figurine in the frontal attitude holding a child on the left side of the chest. Its lower body from a little below the navel is lost. It is completely moulded. Its eyes, nose, mouth, arms, breasts, abdomen, navel are very naturalistically treated. It has its hair combed. It wears one dog-collared necklace and one flowing necklace. There is a wristlet round the right wrist. It has put on a veil but the frontal part of its upper body is absolutely bare.² (Fig. 13.)

14. A male figurine on horseback. It is well preserved except the legs of the horse which are lost. It is completely moulded. The eyes, nose, mouth, arm and leg are well indicated. Its upper body and lower body up to a little above the knees are clothed. It wears a head-dress and a dog-shaped necklace. It holds a dagger in its right hand.³ (Fig. 14.)

It may be shown that, according to the consideration of style, these figurines are evolved out of the Maurya terracotta figurines and form a group by themselves. Let us, first of all, discuss the first point. If we make a comparative study of Figs. 10 and 5, then we easily find that Fig. 10 is probably evolved out of Fig. 5 of the Maurya age. The main and common characteristic of all these figurines is that they are completely moulded. Though all these figurines belong to the same age, yet they might be classified under the following sub-groups, viz., (1) Figs. 10 and 11, (2) Fig. 12, and (3) Figs. 13 and 14 judged from the standpoint of modelling.

Let us now discuss whether these figurines are religious or secular. These figurines may be divided into the following groups according to the sex, viz., (1) female—Figs. 11 and 13,

¹ For the similarity in the treatment of the eyes, see *Journal of the United Provinces Historical Society*, Vol. IX, p. 38, pl. XIV, fig. 47.

² For the similarity of the body-modelling, see *Archaeological Survey of India*, Annual Report for 1930-34, p. 260, pl. CXXX, fig. 3. It is interesting to note that this figurine has also been found at Mathurā and has been ascribed to the Śuṅga age.

³ For an exact specimen, see *Bulletin of the Museum of Fine Arts*, Boston, Vol. XXV, p. 95, fig. 13. There cannot be any doubt that these two specimens are cast in the same mould or in the moulds of similar fabric.

(2) male—Figs. 12 and 14, and (3) unidentifiable figurine—Fig. 10. Let us, first of all, discuss the female figurines, viz., Figs. 11 and 13. So far as Fig. 11 is concerned, we cannot form any definite opinion because there is no definite characteristic on its face by which its character might be indicated. Fig. 13 represents a female fertility figure and is, therefore, religious in character. It has the majority of the female fertility characteristics indicated in the most determinate manner, viz., the developed breasts, the prominent abdomen and the deep navel. Besides ~~these characteristics~~ there is a child on the left side of the chest. This figure may, therefore, be identified as the Universal Mother or Isis type of Dr. Murray. Let us now discuss the male figurines, viz., Figs. 12 and 14. That Fig. 12 represents a non-Indian and is secular is distinctly clear from its head-dress. Fig. 14 which represents a horseman is undoubtedly secular in character. Let us now discuss the figurine whose sex is unidentifiable, viz., Fig. 10. So far as this figurine is concerned, we cannot say anything definitely regarding this point as the whole body is lost and as there is no definite characteristic, whether secular or religious, on the face.

KUSHĀṆA.

15. A head, possibly male. It seems that the whole body is lost. The eyebrows are most probably indicated; the eyes are naturalistically treated; the mouth is greatly worn out and the ears are indicated. It wears a high head-dress. (Fig. 15.)

16. A male head. The eyebrows are indicated; the eyes are naturalistically treated; the nose is broad; the mouth is well indicated; the lips are highly expressive and the ears are not made. The hair is peculiarly coiffured. (Fig. 16.)

17. A male figurine whose lower body from a little below the shoulders is lost. The eyebrows are indicated; the eyes are naturalistically treated; the nose is much worn out and the mouth is well indicated. The hair is combed. It wears a head-dress. (Fig. 17.)

18. A human head. It is completely moulded. The eyebrows are most probably indicated; the eyes are greatly worn out; the nose is broad and the mouth is well indicated. It wears a halo-like head-dress. (Fig. 18.)

19. A female head. Its eyes, nose and mouth are well indicated. It wears a jewelled head-dress and jewelled earrings under which the ~~eyes~~ are most probably hidden.¹ (Fig. 19.)

20. A female figurine whose left arm, left and right legs from a little above the knees are lost. The eyes are bulging out; the nose is mutilated and the mouth is most probably indicated.

¹ For some similarity in technique, see *Bulletin of the Museum of Fine Arts*, Boston, Vol. XXV, p. 94, fig. 19.

There is a demonish stamp over the whole face. The whole body seems to be bare.

21. A male figurine whose lower body from a little above the waist is lost. The whole figure is demonish in appearance. The eyebrows are indicated; the eyes are indicated as bulging out; the nose is extremely broad; the mouth is open and the tongue protrudes; the ears are most probably indicated and the arms are raised upwards to hold three round things on the head. It wears a flowing necklace made of beads. (Fig. 21.)

22. A standing human figurine. It is ~~greatly~~ worn out. Its upper body seems to be bare as indicated from the nude navel, but its lower body is fully clothed. It holds the arms in an attitude of prayer. It wears a double chained necklace, two armlets on the upper arm and two wristlets. The legs are not visible.¹ (Fig. 22.)

23. A seated male figurine. The upper body seems to be bare. It wears the ear-ring and the highly ornamental three-chained necklace. (Fig. 23.)

There is no doubt that, according to the consideration of style, these figurines have been evolved out of the Śuṅga figurine discussed above and also form a group by themselves. The main and common characteristic of all these figurines is that they are completely moulded. Though all these figurines belong to the same age, they may be classified under the following groups, viz., (1) Figs. 15–19, (2) Figs. 20–22, and (3) Fig. 23.

Let us now discuss whether these figurines are secular or religious. These figurines may be divided into three groups according to the sex, viz., (1) female figurine—Fig. 20, (2) male figurines—Figs. 15–17, 21 and 23, and (3) figurines whose sex is unidentifiable—Figs. 18, 19 and 22. The secular or religious character of these figurines will be found out by an analysis of the characteristics of these specimens. Let us, first of all, discuss the female figurine, viz., Fig. 20. So far as Fig. 20 is concerned, we shall show that it is religious in character. In this connection we shall have to visualize the figurine when it was in a good state of preservation. The remaining right leg proceeds upwards. So it is quite natural to conclude that the lost portion of this leg from the knee downwards proceeds downwards because any other posture seems to be improbable. It seems that the left leg was also in the same posture. Thus the figure seems to have originally the squatting posture. It is extremely difficult to form any view about the original posture of the lost left arm. It is extremely important to note that this figurine touches the sexual organ with the right arm. Therefore it becomes the representation of an absolutely nude female figurine seated in the squatting posture and touching the sexual organ with the

¹ For similarity in dress, see *Archaeological Survey of India—Annual Report for 1911-12*, p. 74, pl. XXIII, fig. 22.

right arm. Dr. Murray has elaborately shown that female fertility figures may be classified under three groups, viz., (1) the Universal Mother or Isis type, (2) the Divine Woman or Ishtar type, and (3) the Personified Yoni or Baubo type.¹ If we carefully study the above-mentioned writing of Dr. Murray along with this specimen, then we might conclude that it represents the Personified Yoni or Baubo type. Therefore there is no doubt that it is a religious figurine. Let us now discuss the male figurines, viz., Figs. 15-17, 21, 23. There cannot be any doubt that Figs. 16, 17, 21, 23 are secular in character, because Fig. 16 has the hair coiffured in the secular manner and has the facial expression of a secular man, Fig. 17 has the hair coiffured in the same manner, wears a secular head-dress and has the facial expression of a secular man, Fig. 21 represents a burden-bearer and Fig. 23 sits in the secular posture. Fig. 15 seems to be religious in character because the ears are disproportionately long.² Let us now deal with the figurines whose sex is unidentifiable, viz., Figs. 18, 19, 22. It is extremely difficult to say anything regarding the nature of Fig. 18. Fig. 19 appears to be a secular figure. Fig. 22 seems to be a religious worshipper or devotee.

GUPTA.

24. A male figurine whose body is lost. The right side of its wig is also lost. It is, to some extent, worn out. It is completely moulded. The eyes which are greatly worn out are well indicated; the nose is prominent; the lips are thick and sensitive.³ (Fig. 24.)

25. A similar figurine. (Fig. 25.)

26. A male figurine whose body is lost. It is greatly worn out. It is completely moulded. The eyebrows are most probably indicated; the eyes are naturalistically treated and the mouth is greatly worn out. It wears a high head-dress. (Fig. 26.)

27. A human figurine whose lower body from a little below the neck is lost. It is completely moulded. The eyes are greatly worn out; the eyebrows are possibly indicated; the nose is broad and the mouth is half-open. It wears a head-dress. (Fig. 27.)

28. A male head the right portion of whose forehead is lost. It is completely moulded. The eyebrows are naturalistically treated; the eyes are also naturalistically treated; the

¹ *Journal of the Royal Anthropological Institute*, Vol. LXIV, pp. 93-100, pls. VIII-XII. For further work along this line, see *Man*, Vol. XXXVI, pp. 183-84, article no. 246.

² This characteristic reminds us of the *prthukarna* (long ear), one of the thirty-two *śahāpurusa-lakṣaṇas*.

³ For the great similarity in the treatment of the wig, see *Archaeological Survey of India—Annual Report for 1910-11*, p. 20, pl. XII, fig. a. 2. 4; *Ibid.*, for 1911-12, p. 77, pl. XXVI, fig. 75.

nose is, to some extent, broad; the mouth is half-open and very expressive. It wears a head-dress which is highly artistic in execution.¹ (Fig. 28.)

There is no doubt that, on the consideration of style, all the specimens should be ascribed to the same age. Two of these specimens (Figs. 24 and 25) have the great similarity with some Bhita specimens of the Gupta age so far as the wig is concerned. On this consideration also we ascribe all these specimens to the Gupta age.

So far as the character of these specimens is concerned, there cannot be any doubt that all these specimens are secular because the facial expression and the head-dress of all these figurines are distinctly secular in character.


CONCLUSION.

The above discussion clearly illustrates certain important points. First, it shows that Mathurā was undoubtedly a great centre of clay-sculpture in ancient India because the terracotta figurines discovered at this site range from the post-Indus Valley pre-Maurya to the Gupta ages in the chronological scheme. Secondly, it has been shown that early Indian terracottas, as exemplified by these specimens, have gone through different stages of evolution so far as style is concerned. Thirdly, it has been shown that these specimens do not only portray the religious life of ancient India but also the secular one.

¹ For the similarity in facial expression, see *Archaeological Survey of India*—Annual Report for 1910-11, p. 20, pl. XII, fig. a, 2. 2.

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REVIEWS OF BOOKS.

THE ASTRONOMICAL METHOD AND ITS APPLICATION TO THE CHRONOLOGY OF ANCIENT INDIA. By DR. K. L. DAFTARI, B.A., B.L., Hon. D.Litt. Published by the University Office, Nagpur, pp. i-xvii, 1-257.

The book is divided into three principal parts which treat of (i) the Date of the *Mahābhārata* War, (ii) the System of Ancient Chronology and the Date of Śree Rāma, and (iii) the Date of the Vedas.

The author in this work explains only one astronomical method for settling ancient Indian chronology, viz. by finding the year in which a given set of planetary positions derived from the current *Mahābhārata*, for example, was satisfied. His finding is that the *Mahābhārata* war or the *Bhārata* battle as we should call it for brevity of expression, was fought in 1137 B.C., which more correctly should have been stated as, —1197 A.D. or 1198 B.C., as we shall see presently. The author has derived his planetary positions from chapter 3 of the *Bhīṣmaparva*. Before doing so, he should have enquired the following points: (1) Is not this chapter a later addition in the present recension of the *Mahābhārata*? (2) Are not these planetary positions mere astrological effusions portending dire consequences and as such containing no shadow of truth in them? (3) Seeing that these planetary positions are not consistent in themselves he should have first looked for their origin from the *Bṛhat Saṁhitā* of Varāhamihira and other anterior works of the type by Garga and others. (4) He should have tried to settle the date of the beginning of the present recension of the great epic and what might be the real date of chapter 3, of the *Bhīṣmaparva*. (5) What is most important, were all the 'planets' including Mercury and the moon's nodes discovered at the time of the Pāṇḍavas? (6) What were 'planets' discovered by the Vedic peoples and how far did they use them in their Calendar and astrology? (7) Do the *Vedāṅgas* say anything about the 'planets', Mercury, Venus, Mars, Jupiter and Saturn and the moon's nodes? As the Vedas were divided in *Rk*, *Sāma* and *Yajus* at the Pāṇḍava times, the author should have established that the planetary positions given in chapter 3, of the *Bhīṣmaparva*, though hopelessly inconsistent in themselves, had been in existence in the original Pāṇḍava Saga or *Gāthā Nārasiṁsi*, on which the present Great Epic was based in about 400 B.C.

In short the author has taken his stand upon loose sand. He has tried to solve a problem of his own making which has

nothing to do with the year of the *Bhāroa* battle, and as we shall see that his solution of it is inaccurate. Before him Lele had tried to settle the date of the *Bhārata* battle from the planetary positions, and arrived at the fantastic date of 5229 B.C.† Ketkar imagined that on the day of the new-moon of lunar Agraḥāyana ended, there was a total eclipse of the sun visible at Kurukṣetra, and finished a little before sunset. His finding was that the battle was fought from November 8, till November 25 of 2585 B.C., and there was a total solar eclipse on November 23. But by calculating with the most up-to-date astronomical constants the reviewer has found that the eclipse was not total, and not finished before sunset and of doubtful visibility at Kurukṣetra. These findings have not found any support from the public. Both Lele and Ketkar were not respecters of any of the three traditions as to the date of the *Bhārata* battle, which are: (1) The Aryabhaṭa tradition that it was fought in 3102 B.C., (2) The Vṛddhagarga tradition that it happened in 2449 B.C., and the Purāṇic tradition which says that the interval of time between the birth of Parikṣit and the accession of Mahāpadma Nanda, the interval of time was either 1015, 1115, 1050, or even 1500 years. Our new researcher Dr. Daftari is also a 'Knocker out' of all traditions. He pins his faith in the *Utpātālakṣaṇas* of chapter 3 of the *Bhīṣmaparva*, on which no right thinking man should place any reliance.

A witness who says that—

Mars was either in the <i>nakṣatra</i>	<i>Maghā</i> or <i>Śravaṇā</i> .
Jupiter " " "	<i>Śravaṇa</i> or <i>Viśākhā</i> .
Venus " " "	<i>P. Bhādra</i> or <i>Svātī</i> .
Sun and Moon were " "	<i>Rohiṇī</i> or <i>Jyēsthā</i> .
Saturn was " " "	<i>Maghā</i> or <i>Viśākhā</i> .

can never be believed. To divide such a statement into two sets would be an error of judgment. It is an attempt to get at the truth from a bewildering set of lies and absolute inconsistencies of a story teller that Daftari makes when he infers from the above and one other statement equally unreliable that on the first day of the *Bhārata* battle in the morning, the longitudes were for—

True Sun	= 8° 5'	in <i>nakṣatra</i>	<i>Mūlā</i> ,
" Jupiter	= 7° 1'	" "	<i>Viśākhā</i> ,
" Saturn	= 7° 1'	" "	<i>Viśākhā</i> ,
and " Mars	= 7° 1'	" "	<i>Viśākhā</i> .

After solving some indeterminate equations of the first degree, he concludes that the probable years are only:—

— 841·3	} as reckoned from March 21, 499 A.D.*
— 1695·3	
and — 3640·3	
	(J.D. = 1903397)

* Supplied by the reviewer and not by the author.

His finding is that, —1695.3 years or 619219 days before March 21, 499 A.D. was the day on which the battle began. The date arrived at must be, —1197 A.D., November 21 (J.D. = 1284178), Monday, on which at Kurukṣetra Mean Time, 6 a.m., the planetary longitudes as calculated by the reviewer and Daftari were for—

Planet.	Tropical Longitudes.	Long. refd. to M. V. Equinox of 499 A.D. March 21.	Daftari's Longitudes.	Nakṣatra.	Discrepancies in Daftari's solution from his data.
Sun ..	228° 6' 33"	8s 11° 32' 33"	8s 11° 48'	<i>Mūlā</i>	+ 6° 48'
Moon ..	238° 26' 0"	8s 21° 52'	8s 23° 12'	<i>P. Aṣāḍhā</i>	
Mercury ..	210° 46'	7s 24° 12'	7s 23° 0'	<i>Jyēṣṭhā</i>	
Venus ..	196° 36'	7s 10° 2'	7s 10° 30'	<i>Anurādhā</i>	
Mars ..	213° 10'	7s 26° 56'	7s 25° 27'	<i>Jyēṣṭhā</i>	+ 24° 27'
Jupiter ..	194° 27'	7s 7° 53'	7s 8° 15'	<i>Viśākhā</i>	+ 7° 15'
Saturn ..	192° 30'	7s 5° 56'	7s 5° 38'	<i>Viśākhā</i>	+ 4° 38'
M's A. Node	23° 39'	1s 17° 5'			
M's Perigee	344° 12'	0s 7° 38'			

The reviewer has referred his tropical longitudes to the mean vernal equinox of March 21, 499 A.D., by adding 23° 26' to each of them. It seems, Daftari has not used the most up-to-date astronomical constants for finding the longitudes.

The above is a very faulty solution by the author of a problem of his own making, as may be inferred from the discrepancies between his data and the final result, and it cannot possibly have anything to do with the year of the *Bhārata* battle for more than one reason.

On the day preceding that for which the longitudes have been calculated, i.e. on Nov. 20, —1197 A.D. at K.M. Time, 6 a.m.

The Apparent Sun = 227° 5' 16",

" " Moon = 225° 20'.

Hence the new-moon happened about 10 a.m., K.M. Time, at 21° 50' ahead of *Antares* (=205° 26' 27"). Daftari's implication is also that the *Bhārata* battle began from this day and we examine his finding on this hypothesis.

At this new-moon of November 20, 1197 A.D., the sun's longitude expressed in signs, degrees and minutes was = 8s 10° 31', showing that this date was the 10th day of the solar month of *Pauṣa*, and according to the reckoning of the modern Hindu calendars, the new-moon in question marked the end of lunar *Agrahāyana* and not of *Kārtika* as alleged by Daftari. By a piece of wordy circumlocution the author has attempted to persuade his unwary readers that with this new-moon the

lunar month of *Kārtika* ended in this year, — 1197 A.D., according to the *Vedāṅga* calendar. This is entirely untenable. The year, — 1197 A.D., is similar to the year 1938 A.D. of our time, since the interval in sidereal years = $3135 = 1939 \times 1 + 160 \times 7 + 19 \times 4$, as according to the most modern astronomical constants, 1939, 160 and 19 years are the true lunisolar cycles in which the moon's phases near to the fixed stars are repeated. Hence the new-moon of November 20, 1197 A.D., is most similar in our own time to the new-moon of December 21, 1938 A.D.

We now proceed to show that this new-moon of November 20, 1197 A.D., was that of *Agrahāyana* ended according to the *Vedāṅga* calendar also. According to the *Paitāmaha Siddhānta* as summarized by Varāhamihira in his *Pañca Siddhāntikā*, the lunar *Māgha* which came in 80 A.D. began with the new-moon on the 11th January. On this day at G.M.T., 0 hr. or K.M.T., 5-8 a.m.

Appt. Sun = $289^{\circ} 14' 15''$,
 „ Moon = $289^{\circ} 17' 32''$,
 and β *Delphinis* = $289^{\circ} 39'$ nearly.

This new-moon was eminently suitable for starting the 5 yearly *Vedāṅga* calendar. Here the *pratipat-tithi*, began at the very beginning of the *nakṣatra Dhanisthā*, according to the *Vedāṅga* calendar. Now this year, 80 A.D., was similar in our time in respect of lunar phases near to the fixed stars, to the year 1935 A.D., the interval being 1855 sid. years = $(160 \times 11 + 19 \times 5)$ sid. years. The five yearly cycle would commence from February 4, 1935, and the third year would end on February 6, 1938. These first three years are to be called *Saṁvatsara*, *Parivatsara* and *Idvatsara*. In this period there is one intercalary month both according to the modern and *Vedāṅga* calendar, viz. from the 16th September to 15th October 1936 according to the present day calendar and from August 7 to September 5, 1937, which was the second *Śrāvaṇa* in the *Vedāṅga* calendar. Hence in the next year, the *Anuvatsara* of the *Vedāṅga* calendar, the lunar months reckoned would be named in the same way in both the calendars. Here the *Anuvatsara* lasts from February 7, 1938 to February 6, 1939, and the new-moon of November 20, 1197 A.D., being most similar to that on December 21, 1938, which fell in the *Anuvatsara*, also marked the end of lunar *Agrahāyana* in the *Vedāṅga* calendar of the corresponding luni-solar cycle. Thus Daftari's contention that the new-moon of November 20, 1197 A.D., was of *Kārtika* ended falls to the ground.

Again on the 18th day from November 20, 1197 A.D., was the 8th December of the year, on which at K.M.T., 6 a.m.

Appt. Sun = $244^{\circ} 27'$
 „ Moon = $99^{\circ} 51'$ nearly.
 = $4^{\circ} 3' 17'$, when referred to the mean vernal

equinox of March 21, 499 A.D. This shows that the moon was in the *nakṣatra* *Maghā* and not in the *Puṣyā* division, on the day of the face duel as accepted by Daftari by tampering with the *Mahābhārata* text—

पुष्येण संप्रयातोऽस्मि श्रवणे पुनरागतः ।

and reading it as

श्रवणे संप्रयातोऽस्मि पुष्येण पुनरागतः ।

One point more in this connection has to be considered. I find that on page 56 of his work, Dr. Daftari calculates the longitudes of all the planets for the morning of November 21, 1197 A.D., and also for the same hour of December 9 next, but in the latter case he omits to cite the longitude of the moon, for reasons best known to him. If he had done this it would have been clear to all that the moon's *nakṣatra* on this day was *Pūrvaphalgunī*.

Finally, the 68th day from November 20, 1197 A.D., was the 26th January, 1196 A.D., on which at 6 a.m. Kuruksetra Mean Time—

Appt. Sun = $295^{\circ} 1' 16''$

„ Moon = $37^{\circ} 31'$ nearly.

Here, Moon \rightarrow Sun = $102^{\circ} 30'$ nearly, the ninth *tithi* was current, but the sun had reached the winter solstice 25 days before this date of Bhīṣma's expiry as implied by Daftari's finding. His assertion that 'Bhīṣma must have died within two days from the beginning of the Uttarāyaṇa' is most thoroughly exploded by this calculation. That the *Bhārata* battle was fought in -1197 A.D. is thus a hopelessly lost proposition.

Dr. Daftari here expresses, -1197 A.D., as 1197 B.C., and in another place, -2448 A.D. as 2448 B.C. This is against the international convention. He should have expressed his dates truly in the Julian calendar as accepted in Ancient Chronology. Again in the *Caitra Śuklādi* reckoning of the Hindu year as introduced by Āryabhaṭa I, the date, *Caitra-Vadya* 9th of the Saka year 421 is = 21st March, 499 A.D. Hence the no. 421 does not stand for the current year but for the elapsed years. All these have been very confusing to the present reviewer, and should not have occurred in a book meant for international chronologists. There are other misexpressions in the work, where the author speaks of the 'aphelia' of sun and moon, which should have been correctly stated as 'apogee'.

Again on page 60 of his work Daftari translates *Āṅāraka* as Venus. This is what a true Doctor in Sanskrit literature should do, but it may be doubted if the author has ever seen Mars in opposition. Also on page 18, Daftari translates—

‘चन्द्रसूर्यावभौ यस्तावेकमासीं जयोदशीम्’, as ‘Both the

sun and the moon were eclipsed on the 13th *tithi* (day more properly, of the same month'. Evidently ~~the~~ Doctor has changed the order, 'moon and sun' to 'sun and moon', to suit his purpose, forgetting that an eclipse of the sun followed by an eclipse of the moon could not be interpreted as occurring in the same lunar month which is reckoned from the light-half, i.e. from a first visibility of the crescent to the next. He has done this twice in translating the same passage, which truly means that a lunar eclipse was followed by a solar eclipse in the same lunation. Hence what he says in support of his finding the year of the *Bhārata* battle on this ground on page 44 of his book is quite meaningless or his casting anchor at -1197 A.D. as the year of the *Bhārata* battle is quite unwarranted on this account also. In any case the phenomenon of a lunar eclipse followed by a solar eclipse in the same lunar month both being visible from Kurukṣetra is not one of unusual occurrence.

As to Daftari's selecting a set of planetary positions from the *Utpātalakṣaṇas* in the *Mahābhārata* for finding the year of the *Bhārata* battle, the question of utmost importance is to settle if all the 'nine planets' were discovered in the Pāṇḍava times. Our finding is that in the period in which the *Rgveda* was completed, the only 'planets' noticed and mentioned were: (1) the sun, (2) the moon, (3) Jupiter, and (4) Venus named variously in the *Rgveda* as *Venā*, *Vena*, *Sūryā* and *Sūryasya Duhitā* (Daughter of Sun). This *Venā* (Venus) is allegorically spoken of as being married to Moon and the *Aśvins* carried her in their triangular car to her groom. At about 400 A.D., when the knowledge of the 'nine planets' was communicated from Babylonia and Greece to India, and these were accepted as destiny makers of men, a mode of performing a religious ceremony was prescribed to propitiate the new gods, in which libations of *ghee* or clarified butter were to be poured on fire with a selection of *Ṛcas* as given in the *Matsya Purāna*, chapter 93. These *Ṛcas* are all well known to all astrologers.

It thus appears that the appropriate *Ṛcas* for oblations to Sun and Jupiter alone could be found from the *Rgveda*. As to Moon she was a food of the gods and her counterpart on the earth was the effusion of the *soma* plant or creeper, a food of mortals. The *Ṛcas* selected for the rest of the 'nine planets' had nothing to do with these new deities. The conclusion is now irresistible that in the period in which the *Rgveda* was finally developed, of which the lower limit must have been the date of the *Bhārata* battle, the seven of the 'nine planets' were either not at all discovered or even if some were discovered they were not understood to have anything to do with the human destiny, i.e. they were neither the makers nor the indicators of it in the *Rgvedic* period.

In the face of these facts now presented it would be, in our opinion, very rash or a height of absurdity to try to settle a problem in ancient Indian chronology with a set of positions of 'planets', and more specially to try to determine the year of the *Bhārata* battle, selected from the *Utpātalaḥṣaṇas* of the *Mahābhārata*, which cannot by any construction be taken as belonging to the Pāṇḍava time, and are clearly later additions by some writers who had no sense of astronomical consistency. An attempt was made by Bentley first in modern times to find the dates of Rāma and Kṛṣṇa from their horoscopes as found in the *Purāṇas*, the *Rāmāyaṇa* and a work named *Khamāṇikya*, with only partial success in bringing out the planetary positions. The dates arrived at were (1) the 6th April, 961 B.C., for Rāma and (2) for Kṛṣṇa the 7th August, 600 A.D., both of which are unacceptable. These results show that a set of 'planets' positions found anywhere in Sanskrit literature must be treated with great suspicion, and regarded as the work of a mere astrologer whose time can hardly be before the time of Varāhamihira (550 A.D.). The *Utpātalaḥṣaṇas* of the *Mahābhārata* also must be dated about the same time or about a century and a half anterior to it.

As to the method followed by Daftari in the solution of the problem of his own making it cannot be said to be entirely new. Bentley must have followed it in his investigations referred to above. The greatest Indian astronomer Āryabhaṭa I, must have followed the same method in finding his *Kali* epoch, the 18th February, 6 a.m., or 18th February 0 hr. both of the Ujjayinī Mean Time, at which all the 'mean planets' were supposed to have been at the beginning of the Hindu sphere and the moon's apogee and the ascending node at the longitudes of 90° and 180° respectively. These situations of the 'mean planets' have been examined by Bailly, Bentley, Burgess and the present reviewer also with the most up-to-date astronomical constants. Āryabhaṭa's solution of his problem was attended with only partial success. In the present case also Doctor Daftari's problem has been only partially solved by him, though he started with four or five planets only. As he is a 'Knocker out' of all traditions what was the harm if he had given us full planetary positions for, —841.3 years and 3640.3 years as reckoned from his zero date? Although we can never persuade ourselves that any one of his solutions can give us the real date of the *Bhārata* battle, we could judge his method and solutions as a matter of curiosity. In astronomical chronology each researcher has his own methods, which may be different even from the same set of data. Again, as different sets of data of different classes require different astronomical methods for their solution, there cannot be only one method for all sorts of data as Dr. Daftari seems to suggest—there cannot be one

panacea for all the evils 'that flesh is heir to'. It may be doubted if there can be found one single instance in which as many as five of the 'planets' positions are recorded in ancient literature or epigraphy and which may be taken as correct. We are thus bound to consider his method also more or less useless for all practical purposes.

Dr. Daftari, in our opinion, should have avoided (i) all statements found in the *Mahābhārata* as to the planetary positions in the *Utpātalaḥṣaṇas*, (ii) all attempts as summary found in the Great Epic, e.g. as in the *Salyaparva*, ch. 35, etc., (iii) he should not have taken *nakṣatras* to mean equal divisions of the ecliptic. He should have put the greatest trust in 'incidental statements' as to the moon and her phases—without rejecting or tampering with any of them except for an absolute necessity. He should have used for a data the statements as to the winter solstice day as stated in the *Mahābhārata* in determining the year of the *Bhārata* battle.

We cannot accept his finding of the year of the *Bhārata* battle, and his method, whatever its merit, is useless for all practical purposes. As his date of the *Bhārata* battle is unacceptable, his findings in the rest of his work are also unacceptable. His book was published in 1942, but he is apparently unaware of the publications by the reviewer dealing with the same topics in *J.R.A.S. Bengal. Letters*, Vol. III, 1937; Vol. IV, 1938, and Vol. VII, 1941.

P. C. SENGUPTA.

SOME HISTORICAL ASPECTS OF THE INSCRIPTIONS OF BENGAL (Pre-Muhammadan Epochs). By BENOY CHANDRA SEN, M.A., B.L., Ph.D. (Lond.), Lecturer, Calcutta University. Published by the University of Calcutta. Pp. lxxviii+613.

The work of reconstructing the early history of Bengal with the help of literary and archaeological data, which was so brilliantly initiated decades ago by the late Mr. R. D. Banerjee has since been taken up by a band of earnest Bengalee scholars. The recently published *Dacca History of Bengal*, Vol. I, shows what wealth of material have already been collected by them and how they can be scientifically and critically utilized in elucidating the political, social and cultural history of their country. The most important of the archaeological data which have helped scholars in the fulfilment of this task is the epigraphic one. The author of the book under review has specialized in the study of this branch of Indian archaeology and has particularly directed his attention to the inscriptions of Pre-Muhammadan Bengal. He has long been teaching this subject to the post-graduate students of the Calcutta University with great credit. The present work fully testifies

to the fact that the years of hard labour devoted by him to the study and teaching of epigraphy have not been spent in vain. These have unquestionably prepared him for undertaking the stupendous task which he has so creditably fulfilled. He has more than justified his claim which is 'to prepare the foundations of further researches that may be undertaken by the author on a larger and more comprehensive scale in future'. This promise on his part is welcome, and the subsequent contributions from his pen on this and other allied topics will be eagerly awaited by all students of Indian history and archaeology.

The book is divided into three well-knit parts each one of which is divided into several chapters. There is an elaborate introduction and the index appended to the volume is full and exhaustive, and both will be of immense use to the readers. The first part of the book deals with the geography of Bengal at great length, while the last two parts give us a thorough and complete account of her political and administrative history up to the end of the Sena rule. The treatment of the respective topics in the author's carefully formulated scheme is highly satisfactory. He has not only made full use of the inscriptions but also of all other possible sources having any bearing on his theme. The importance which he has accorded to the elucidation of numerous geographical problems in a historical work is praiseworthy, for the study of the history of a country should always proceed alongside with that of its geography. Various other problems connected with the political and administrative history of Pre-Muhammadan Bengal have been discussed by him at great length, and he has tried to assess the different views of previous scholars regarding them at their proper worth. While offering his own well-considered suggestions about many of these, he has seldom failed to present his case with great skill and acumen. The long time the book was in the press was, in a way, a blessing in disguise, for it enabled the author to make it as up to date as possible. The unusual length of the introduction is explained by the fact that he had to incorporate many additional informations which could not be put in their proper places in the body of the book, due to much of the latter having already been in print. Several misprints and other slight errors which have crept in in spite of the great care evidently taken by the author to make it as perfect as possible do not seriously detract its value. No student of the early history of Bengal, nay of India, will be able to do without the book, and it will ever serve as an inspiration to all workers in the field.

JITENDRA NATH BANERJEE.

THE HISTORY OF BENGAL, VOLUME I: HINDU PERIOD. Edited by R. C. MAJUMDAR, M.A., Ph.D., F.R.A.S.B. Published by the University of Dacca, Dacca, 1943. Pages 28+729, with 5 maps and 190 illustrations in 80 plates. Price—not mentioned.

The book under review is undoubtedly one of the most remarkable publications of recent years. It is the result of the first noteworthy attempt to write a comprehensive history—political, administrative, social, economic, religious and cultural—of an important province of India, and its editor, authors and publishers should be congratulated by all lovers of Indian history. In a work of this magnitude it is easy to find out cases in regard to which one may be inclined to disagree with the views accepted or postulated; but the volume under review, an outcome of the collaboration of a number of eminent scholars, will no doubt remain the standard work on the history of Bengal for many years to come. It is a landmark in the history of Indological studies in Bengal and is sure to be a guide to future workers on Indian history.

The contents of the book under review are divided into 17 chapters of which the first three dealing with the physical and historical geography of Bengal and with its history down to the beginning of the Gupta epoch have been contributed by Prof. H. C. Raychaudhuri. Chapters IV-IX which include all the sections discussing the political history of the country from A.D. 320 to the Muslim conquest come from the pen of Dr. R. C. Majumdar, editor of the volume under review. Three other chapters have also been written by Dr. Majumdar jointly with other scholars—chapter X on the administration of ancient Bengal with Dr. R. G. Basak, chapter XV on the ancient Bengali society with Drs. D. C. Ganguly and R. C. Hazra, and chapter XVII on the Bengalis outside Bengal with Dr. Ganguly. Chapter XI on Bengal's contribution to Sanskrit literature has been written by Prof. S. K. De; chapter XII on the rise of vernacular literature by Prof. S. K. Chatterji; chapter XIII on religion and iconography respectively by Dr. P. C. Bagchi and Dr. J. N. Banerjea; chapter XIV on architecture and on sculpture and painting respectively by Mr. S. K. Saraswati and Dr. N. R. Ray; and chapter XVI on the economic conditions by Dr. P. C. Chakravarti.

On the whole, the performance is exceptionally creditable and some of the sections (e.g. chapters XI-XII, etc.) are an outstanding feature of a work of this kind. The book refers to various aspects of the ancient history of Bengal with the minor exception of the question of the development of the Bengali alphabet and numerals which might have formed

part of chapter XII. Such sections as chapters I-III, X, XIV, etc. are highly entertaining. It must, however, be admitted that several of the sections (e.g. in chapters XIII and XV) appear to be rather hurriedly written and invite criticism both in respect of omissions and commissions. The chapters on political history from the 4th century A.D. have been written by one of the most erudite scholars who have specialized in the subject. As however Dr. Majumdar's views on many problems of the history of Eastern India are quite well known to students, certain portions in chapters IV-IX have a familiar ring about them. His treatment is generally exhaustive and he has analyzed elaborately even the most unconvincing theories in order to demonstrate their unsoundness.

As already pointed out it is not difficult to offer alternative, supplementary or emendatory suggestions with regard to numerous points in a work of this magnitude. But they cannot detract from its great value. The following are a few such remarks made by way of illustration.

P. 14. *Pañcha-gauḍa*. The verses सारखताः कान्यकुब्जा गौड-मैथिलिकोत्कलाः । पञ्च गौडा इति ख्याता विन्ध्यस्थोत्तरवासिनः ॥ and कर्णाटाश्चैव तैलङ्गा गुर्जराराष्ट्रवासिनः । अन्ध्राश्च (sic.) द्राविडाः पञ्च विन्ध्यदक्षिणवासिनः ॥ of the *Skanda Purāṇa* appear to refer to social units of the Brāhmaṇas. In addition to its territorial and political import, the word pañcha-gauḍa had also a social significance.

P. 94f. *Gauḍavaho*. Better read *Gauḍavaha*.

P. 98. *Rājabhaṭṭādi-vaṃśa-patita*. As pointed out by Raychaudhuri, no evidence has been brought forward to prove the identification of Dharmapāla, mentioned in Haribhadra's *Ashtasāhasrikā Prajñāpāramitā*, with Dharmapāla son of Gopāla of the Pāla dynasty. Dharmapāla was a fairly common name; cf. Dharmapāla of Dandabhukti, Dharmapāla of Assam, etc.

P. 184, Gopāla as king of Vaṅga. For the same suggestion, see *Proc. Ind. Hist. Cong.*, 1938, p. 193ff; *New Ind. Ant.*, 1939, p. 382ff.

P. 195 (cf. p. 17). Trailokyachandra as ruler of Harikela. The passage आधारे हरिकेलराजकुदञ्चस्मितानां श्रियां apparently signifies that Trailokyachandra was a feudatory of the lord of Harikela; cf. *Bhāratbarsha*, Jyaishta, 1348 B.S., p. 768ff; *Ind. Cult.*, 1941, p. 405ff.

P. 198. Simhapura in Kaliṅga as the original home of the Varmans of Bengal. The Bengal Varmans were of the Yādava lineage originally belonging to Simhapura and the only Varman family of Simhapura claiming descent from the Yādavas can be traced in the Punjab. For the early history of the Bengal Varmans, see *Bhāratbarsha*, loc. cit., *Ind. Cult.*, loc. cit.

P. 222, n. 1. The name of Dommanapāla's father was possibly Śrīvāsapāla, sic. Srivāsapāla; cf. *Ind. Hist. Quart.*, 1939, p. 306f.

P. 231. Mr. C. C. Das Gupta's calculations of the astronomical data of the Barrackpur inscription of Vijayasena are all wrong.

P. 402. Bhāgavatism and Pāñcharātra (possibly related at the beginning) completely different in the Gupta period. P. 402, n. 4. The *Vyūhavāda* exclusively related to Pāñcharātra and the *avatāravāda* of Bhāgavatism completely different in their ideological basis. Satisfactory evidence has not been adduced in support of the suggestions. The inscriptions of the Gupta age have nothing to say on such complete difference. On the other hand, the *Pādma Tantra*, one of the 108 canonical Vaishṇava Tantras or *Samhitās* which is earlier, than 800 A.D. (Schrader, *Int. Pāñch. Ahirb. Sam.*, pp. 20-21, uses the word *bhāgavata* and *pāñcharātriaka* as synonymous; cf.

सूरिसुहृद्भागवतस्त्रायतः पञ्चकालवित् । एकान्तिकस्तन्मयश्च पाञ्च-
रात्रिक इत्यपि ॥ (J.R.A.S., 1911, p. 935). The suggestion that Pāñcharātra had nothing to do with *avatāravāda* is disproved by the *Ahribudhnya Samhitā* much earlier than 800 A.D. (Schrader, *op. cit.*, p. 20). The 39 *Vishavas* or *Avatāras* (that is incarnations of God or His Vyūhas or Sub-Vyūhas or angels) mentioned in this work include all the well-known *Avatāras* noticed in such works as the *Nārāyaṇīya* section in the Śāntiparvan of the *Mahābhārata* (Schrader, *op. cit.*, pp. 42-43): 1. Ekaśṛṅgatanu (= Matsya, No. 28); 2. Kamatheśvara (= Kūrma, No. 15); 3. Varāha (No. 16); 4. Nārasimha (No. 17); 5. Vāmanadeha (No. 29); 6. Paraśurāma (No. 35); 7. Rāma Dhanurdhara (No. 36); 8. Ananta (= Balarāma, No. 3) and Vihaṅgama (= Haṁsa, No. 9). 9. and 10. Kalkin (No. 38) and Kṛishṇa (No. 34). Other works like the *Vishvakomasamhitā* include Buddha in the list of secondary *Avatāras*. The *Harshacharita* (ed. Parab, pp. 236-37) which is a post-Gupta work no doubt marks some distinction between the Bhāgavatas and the Pāñcharātrikas. The nature of this distinction is not clearly noticed; but the commentary of Śaṅkarārya (14th century) who explains *bhāgavata* and *pāñcharātriaka* respectively as *vishṇu-bhakta* and *vaishṇavabheda* does not appear to support the lines of distinction suggested in the volume under review. The Gupta records give evidence to the great popularity of the *Avatāras*, but do not refer to the independent worship of the Vyūhas; and the Pāñcharātra literature appears to suggest that the Vyūhavādins were very much influenced by the *avatāravāda* as early as the beginning of the medieval period. Kṛishṇa and Balarāma are referred to as *Avatāras* in medieval Vaishṇava literature. This however does not signify that the Vyūhavāda completely died out as a philosophical doctrine. We may make a distinction

between the survival of the *vyūhavāda* and that of the indifferent worship of the Vyūhas. See also Raychaudhuri, *E.A.V.S.*, 2nd ed., p. 176 and note.

P. 419ff. The later Senas are called *śaraṇāgatavaḥṣṭapañjara*, 'a secure refuge for those who seek his protection'. One may be tempted to interpret the word *vajrapañjara* as an epithet of Dadhichi; but that does not appear to be supported by Indian literature. The word is used in the sense of a mystic *Yantra*, in the literature of the Vajrayāna school (*Sādhanamālā*, I, pp. 195, 226, 255). It is the epithet of certain prayers addressed to Durgā and also the name of a Dānava. *Vajrapañjara* seems also to have been the *viruda* of a Vajrācārya who is known to have been the author of the celebrated Tārā *mantra*: *Oṃ tūre tuttāre ture svāhā*. Cf. एतन्मन्त्रवरं श्रेष्ठं सर्वबुद्धैर्नमस्कृतम् । पठितसिद्धिकरं दिष्टं

(v.l. तौत्रं) वक्ष्यद्भरभाषितम् ॥ (*ibid.*, pp. 186, 200, 233). We do not know whether he may be identified with Vajra (Ghaṇṭa-pā) of Varendra or with any of the known Vajrācāryas with names or *virudas* containing the word *vajra*. But this Vajrapañjara is possibly to be assigned to a period not later than Devapāla (first half of the 9th century), because, as pointed out by S. K. Saraswati, the *Mantra*: *Oṃ tūre tuttāre ture svāhā* is found on the Hilsā Buddhist Tārā image established during the 35th regnal year of Devapāla (*J.B.O.R.S.*, X, p. 33).

P. 589. Reference to the Vaidyas in South Indian records of the 8th century. As pointed out by Raychaudhuri, the earliest known reference to a person of the *vaidyāmaya* with name ending in *Varman* (शासनं वैद्यान्वयश्रीवचवर्मेणा लिखितं) is found in the Telamanchi grant of Vikramāditya I dated A.D. 660 (*Ep. Ind.*, IX, p. 101).

P. 669. *Kapardaka-purāṇa*. Cf. the word *pañapurāṇa* apparently indicating 16 copper *pañas* equated as a single unit to the silver *purāṇa* or *Kārshāpana* in the Nangsal inscription (Lévi, *Le Nepal*, III, p. 154ff.). This would suggest that Bhandarkar's interpretation of *Kapardaka-purāṇa* as a *purāṇa* of the shape of a *kapardaka* is highly improbable. It may be noticed in this connection that the 21 Nepal inscriptions as edited by Lévi have not been noticed by Bhandarkar in his *List of Inscriptions*. We eagerly await the publication of Volumes II and III of the *Dacca University History of Bengal*.

DINESH CHANDRA SIRCAR.

LIFE IN THE GUPTA AGE. By RAJARAM NARAYAN SALETORE, M.A., Ph.D., The Popular Book Depot (Bombay). Price—not stated.

Under the unassuming title 'Life in the Gupta Age' Dr. Saletore has compiled what is in effect an encyclopædia conspectus of the classical Indian conception of human existence in the fourth to the seventh century A.D. framed in an historical summary of the main dynastic features of the Gupta period. The account is based on an analytical study of the classical writers, in particular Kālidāsa, Bāṇa and Daṇḍin, supplemented by the reports of the Chinese travellers and the evidence of the leading inscriptions, and illustrated at appropriate points, particularly as regards costume and toilet, from the Ajantā paintings. While the background is sketched in from the doctrines of Kauṭilya and Vātsāyana, so difficult to isolate either in, or from, the heyday of Indian civilization which absorbed their permanent values; and brief references are made to the Smṛtis. The general effect is perhaps rather to recreate the picture of life as it appeared through the tinted spectacles of the courtly poets or the dark glasses of the Chinese travellers than to attempt a precise sociological study of the age. Specialists in each field will probably find no new contribution to their knowledge and the general reader may hesitate to attach the assembled batteries of referenced detail. But the work is invaluable as a systematic and comprehensive compendium of the features of an existence which, coloured as its representation may be, was anything but imaginary, and did, as the author quotes Barnett and Vincent Smith to remind readers, represent one of history's peaks in civilization. It is of particular value in collating the inscriptions with literary sources, not so much for the more familiar purpose of illustrating the common literary tradition as for that of touching on precise points of contact in the social and administrative system and in official terminology.

The general range covered is extremely comprehensive, extending over the whole field of political, social, cultural and religious activities, literature, and the costume and ornaments of daily life. The result is perhaps a certain diffuseness and lack of precision in examining some of the features touched on. It is for instance too summary a thesis to discredit Fa Hien and to ascribe the institution of the slavery to the Gupta age on the basis of little more than the hyperbolic literary use of the expression *Dāsī* and the functioning at court of captive women as *Dāsīs*. And notwithstanding frequent references to Vātsāyana the author does less than justice to the accomplishment of Gupta civilization, as interpreted by the poets, in attuning to a conscious and refined technique of erotic behaviour, (an ideal only now being given expression to by

Western socialists) when he remarks with a reference to Raghu, XIX that 'sometimes kings and nobles fuddled themselves with wine and women'. But whatever aspect of this civilization one may be interested in studying, the material and the index to its analysis will be found in Dr. Saletore's work. And one cannot too often be reminded that whatever the general condition and state of the people as a whole in the actual Gupta age,—a matter about which after all the conventional tributes of court eulogists do not tell us a great deal—the urban life in courtly and cultured circles did give expression to those, values, literary, aesthetic and intellectual, which are recognized as the essence of civilization. No encyclopædia can interpret that spirit. Dr. Saletore's work comprehends all the facets of its manifestation. The book contains an excellent bibliography to which might be added a small monograph 'Culture inspired by Kālidāsa' by Sivaramamurti, correlating literary clichés and conventions of the Gupta age with their sculptural expression.

C. W. G.

INDIA AND THE PACIFIC WORLD. By DR. KALIDAS NAG, M.A., D.Litt. (Paris), of the Department of Ancient Indian History and Culture, Calcutta University. Published by the Book Co., Ltd., College Square, East, Calcutta. Size D.C. 8vo. Pp. xiv+294. Price Indian Rs.11 and Foreign £1 or 5 dollars.

This useful book covers a much wider field than its title indicates. It is really a survey of the history of culture in the lands of Eastern Asia and Oceania. It also contains a summary of the most noteworthy contributions of modern literature to this vast subject. The book includes much valuable material for a detailed history of Greater India but the many interesting references to the cultural contacts between India and the Far East are often rather overshadowed on account of the deep interest which the author takes in the wider problem relating to the general development of culture and civilization in Asia. The book, in fact, provides an invaluable background for a more detailed study of the history of Greater India. There is nobody more competent than Dr. Kalidas Nag to write on this fascinating topic. He has probably travelled more widely in the Far East than any other Indian scholar. His literary style is good and his enthusiasm for his subject appeals both to the specialist and the ordinary general reader.

Now that Dr. Nag has completed this excellent introduction to the history of Greater India we may confidently look forward to further contributions from his pen to this subject. One of

the most interesting chapters in such a history would deal with the early development of cultural relations between India and China. As he states in his last chapter 'Sino-Indian collaboration in the field of art, literature and philosophy formed the noblest chapter in the history of North-East Asia whence Indian culture penetrated through Korea into Japan and to other islands of the North Pacific.' For about eight hundred years after the reign of the Emperor Wu-Ti (140-87 B.C.) the history of the cultural relations between India and China is inextricably bound up with that of the great silk road through Chinese Turkestan, the importance of which the discoveries of the late Sir Aurel Stein have done so much to elucidate. We hope that in the near future Dr. Nag will tell us more about this aspect of the history of civilization in India.

NORMAN G. A. EDGLEY.



